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The Massachusetts Medical Society

The next Annual Meeting of the Massachusetts Medical Society will be held at the Hotel Statler, Boston, on Wednesday, Thursday and Friday, June 8, 9, and 10, 1932.

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HEPATO-LENTICULAR DEGENERATION*

Report of a Case With Autopsy

BY PAUL I. YAKOVLEV, M.D.,† AND STANLEY COBB, M.D.†

SINCE Wilson[1] described this syndrome in 1912, many other cases have been reported in the literature[2], but fortunately the disease remains rare. In brief, the picture is that of symptoms beginning in youth, usually with a multiple family incidence, running a chronic course of several years and ending fatally from intercurrent infection. The symptoms are those of a progressive dystonia with athetoid or choreic movements; the facial and articulatory muscles are conspicuously affected, causing great speech difficulty and grimacing. Tremor may be present. These symptoms may be explained by the degenerative lesion of the lenticular nucleus always found at autopsy. The other factor is liver disease. In the advanced cases no indication of this is apparent except that the area of liver dullness is small to percussion. Barnes[3] has pointed out, however, that a careful history or study of other members of the family may show acute hepatitis with jaundice long before the onset of the nervous symptoms. At autopsy the cases all have a small, cirrhotic liver.

Nothing is really known as to the etiology. It is generally considered to be a familial degenerative disease attacking striatum and liver in a selective way—a "pathoklisis", to use Vogt's[4] term; that is, a chemobiotactic process causing certain toxins to have a specific affinity for a certain system of organs. Spielmeyer[5] has recently discussed these specific system diseases and believes that one should look farther for underlying physiologic causes and not accept pathoklisis.

Concerning the relation of liver disease to striatal lesions, there are certain relevant data. Wilson[1] states that in icterus neonatorum the striatum and Ammon's horn are the only parts of the fore-brain that are jaundiced, standing out dark yellow amid normal pink and white cerebral tissue[6]. In the hind-brain the larger nuclei are conspicuously yellow, especially the dentate nuclei of the cerebellum, and the olivary nuclei. Lesions in these locations have been described in cases of Wilson's disease by Pines[7] and others who found many fat vacuoles in the ganglion cells of the dentate nuclei. Chronic manganese poisoning is known to cause both degeneration of the liver[8] and neurologic symptoms simulating Wilson's disease[9],[10]. Barnes and Hurst[11] think that in these cases the failure of the antitoxic function of the liver may lead to cerebral lesions. Thus there is a possibility that some unknown toxin affects the individual or family which suffers from hepato-lenticular degeneration and that the "familial degeneration" explanation is inadequate.

CASE REPORT

FAMILY HISTORY

The following history was obtained: paternal grandfather died at 74 years; cause unknown. Paternal grandmother died at 72. Maternal grandfather died at 45 of pneumonia (?); maternal grandmother died between 45-46 years of age of asthma. One paternal uncle is paralyzed on the right side and cannot talk. This paralysis came on suddenly following shock. Mother and father are living and well. Mother had eight pregnancies. First, a miscarriage at eight months following an accident; second, the patient, 19 years old; third, a girl, died at 14 years of age last June after a short sickness of about one month's duration, which was described as ascites, swelling of legs, jaundice and irregular fever. She was said to have heart trouble, this being the cause of death. Fourth child was born with the cord around the neck at full term, and died a few weeks afterwards. Fifth child was born at full term and died a few days afterwards. The cord was also around the neck. Sixth child a girl, 11 years old is living and well. Seventh child a boy, 10 years old is living and well. Eighth pregnancy was a miscarriage at three months.

PERSONAL HISTORY

Patient was born at full term and was well up to the age of 6 months at which time he had inflammation of both eyes. He was nursed by another woman, had blennorrhagic infection and at about 3 months of age lost his left eye, which was enucleated in order to save the other eye. He learned to walk and talk at the average age. He cut his teeth before one year without any particular difficulty. He developed normally, went to school at 7 and never repeated a grade. He appeared bright and capable. He graduated from grammar school at 13 years of age. During the summer of 1921, immediately after he finished the grammar school, the parents noticed that the patient sometimes had a peculiar difficulty in his speech. "He did not talk clearly, as if his tongue was thick." About a year later he began to have a kind of "shake" in his right arm, especially noticeable at table when he used his fork or spoon. At times food would drop out of his mouth and he had difficulty in swallowing

*From the Monson State Hospital for Epileptics, Palmer, Massachusetts, and the Department of Neuropathology, Harvard Medical School, Boston, Massachusetts.

†Yakovlev—Assistant, Department of Neuropathology, Harvard Medical School. Cobb—Bullard Professor of Neuropathology, Harvard Medical School. For records and addresses of authors see "This Week's Issue," page 244.

properly. He was frequently reprimanded for these bad habits, and for keeping his mouth open so that saliva escaped. These symptoms in the beginning were very mild and appeared only at times; at other times the boy would seem quite normal. During the last two years these symptoms became more pronounced and there were fewer remissions. He began to have "shaking spells"; that is, more or less constant movements and twitchings. Restlessness and shaking of the hands became pronounced. Also his speech became unintelligible. Even 3 years after the onset he sometimes had remissions for a short period of time so complete that only his close relatives, knowing his condition, noticed that he was not quite "right". During the 4th and 5th years of the disease he showed marked changes in his disposition. He became dull and apathetic at times; at other times he would have periods of excitation in which he would laugh and talk incoherently. For instance, at one time when guests were received at his home he came into the room laughing without reason and talking loudly but incoherently. Previously he had always had a cheerful and pleasant disposition and was easily managed at home and in school. During the last year (the 6th year of the disease) he often shook so that he could not walk and he had to be kept in bed. Sometimes he apparently would lose consciousness and fall onto the floor in regular convulsions. During the last summer on two occasions he attempted suicide: once he tried to throw himself into water; on another occasion (June, 1927) he took "rat poison" and swallowed it. A doctor induced vomiting. The patient vomited blood, was cyanotic and had convulsions; within two or three weeks he recovered from this poisoning. In the autumn of 1927 he became practically bedridden and because of his extreme motor restlessness he was brought to the Monson State Hospital on November 11, 1927.

STATE ON ADMISSION

The patient is a boy who looks his age; considerably emaciated; of dark complexion. Left eyeball enucleated. Face: mask-like on right and inexpressive. Mouth: open. Tongue: prolapsed. He cannot walk alone; when supported his gait is peculiar; he walks with marked tendency to retro- and right latero-pulsion; he advances sidewise with the right shoulder forward, the right leg making about normal steps while the left is dragging rigidly after it. He shows considerable muscular rigidity with the following intrinsic signs of hypertonia:

(1) Reaction of antagonists is exaggerated, more so on left side of the body than on the right.

(2) There is marked cog-wheel sign on passive motion, not always but frequently perceptible, especially in elbow joints.

(3) His hands, especially left, show athetoid posture, overflexion of wrist and overextension of fingers. His arms are the seat of peculiar tremor: rhythmical flexion-extension of the wrist; some flexion-extension of the elbow. The tremor of the fingers is of Parkinsonian type, but much slower, being about 32 beats per minute.

(4) The left foot shows contracture in equinovarus position, inwardly rotated and inverted, without ankylosis.

(5) The head shows a marked tendency to be rotated to the right shoulder, and the left sternocleido-mastoid muscle is distinctly more tense than the right. There are jerky movements of the left shoulder. Passive rotation of the head toward the left side meets considerable resistance, and at times seems to be painful. When in bed the patient is in continuous movement, especially the legs and arms are constantly moving in a purposeless, jerky manner. These apparently involuntary movements predominate in the right leg which is constantly brought into flexion and abduction, then again extended, again flexed and crossed over the opposite leg. The same upper limbs are flexed then brought in abduction, towards the mouth, pronated again, flexed. There are rhythmical, tremor-like movements of both feet in the form of flexion-extension at the ankles at about 16 beats per minute. There are also myoclonic movements, i.e., jerky flexion-extension and adduction-abduction of the right leg.

FIGURE 1. The patient, about one month before death, showing torsion spasm and tremor of the hands, as indicated by their being blurred in this instantaneous photograph.

The patient seems to understand the orders but he cannot communicate as he is perfectly speechless; only rare, scarcely audible, guttural sounds come out of his throat when he is especially stimulated. At times a peculiar soundless laughter changes his face for a moment into a grimace and disappears immediately leaving the face vacant of expression. He seems to be very thirsty and asks for a drink by putting his right thumb into his mouth. When given water he swallows it with considerable difficulty and in the end chokes so that it escapes from his nose and mouth. Swallowing of solid food seems to be completely impossible.

The pupil of the right eye is dilated, and reacts well to light. There is no nystagmus. Ocular movements are free, these contrasting with the striking immobility of the rest of the face. When laughing the face is more folded on right side than on left side. No pericorneal ring is seen. The tongue protrudes slowly and incompletely. It deviates to the left. The tendinous reflexes of the upper limbs are all present, but extremely reduced in amplitude because of muscular rigidity. Patellar reflexes are present on both sides; the left is more rigid and hypertonic than the right, while the right is easier to elicit and more ample. The rigidity of the abdominal muscles does not permit the testing of the abdominal reflexes with certainty; on some occasions, however, faint contraction is obtained in the

upper abdominal quadrant. Plantar reflexes are difficult to elicit on account of continuous movements of the toes on both feet; they seem to be flexor on both sides. Temperature on admission was normal.

November 22: Patient cannot stand up from the sitting position or get up from the lying position into the sitting position without assistance, because of extreme rigidity and involuntary movements disturbing any purposeful act he attempts to do. When sitting on the edge of the bed and ordered to lie down, he falls backward with legs flexed as if he were sitting, like a wax statue. He shows a rise of temperature, seems to be more apathetic and rigid. Examination of urine reveals presence of albumin, blood and hyaline casts. Blood pressure: systolic 90; diastolic 50. Pulse is irregular and rather slow; 60 per minute. Percussion of the liver shows, so far as it can be ascertained, reduction of liver dullness, about one inch above costal margin in mammillary line. Spleen dullness on the contrary seemed to be enlarged, so as to produce a dullness over the lower left lung base. There is no sign of pulmonary complication. Wassermann on the blood done at the time of admission was reported negative.

On November 24, patient was transferred to the hospital ward because his condition was rapidly growing worse. He showed rise of temperature with irregular course oscillating between 101-104°. Emaciation was rapidly progressing, swallowing seemed to be more and more difficult; he became incontinent of urine and feces.

On Friday, December 2 he had two severe convulsions after which he remained in a comatose condition and died December 3, at 5:15 P. M.

Autopsy Report

Autopsy was performed by Dr. Miller and Dr. Belson two hours after death.

HEAD: On opening the skull the dura mater was found extremely adherent to the cranium and to the pia mater. Along the longitudinal sinus these caused tearing of the right hemisphere in the longitudinal fissure. On incision of the dura about 20 cc. of fluid

FIGURE 2. Gross section of the right hemisphere showing degeneration in the striatum, especially in the putamen.

escaped. The pia was somewhat opaque and there was extensive vascular congestion.

BRAIN: Weight, 1310 grams, consistence was softer than the average. Convolutions were somewhat flattened, moderate hydrocephalus was found, the lateral ventricles being dilated, with the posterior horns extending well into the occipital lobes. Capillary injection was found throughout the white and gray matter of the brain.

Basal ganglia, especially putamen on both sides, appeared dark yellowish in color. Left hemisphere: There was an unfortunate cut made longitudinally through the basal ganglia region making it difficult to examine. The outer segment of the lenticular nucleus was pigmented, softened and contracted. Right hemisphere: The whole was cut in coronal sections. The putamen was pigmented, softened and contracted. A whole brain section was preserved in Kaiserling and mounted as gross specimen.

FIGURE 3a.

FIGURE 3b.

Both pictures are photographs of the liver showing nodular cirrhosis.

THORACIC CAVITY: Lungs were found extremely small, soft and gray-whitish in color. Right lung: 260 grams; left: 250 grams.

HEART did not show any valvular defects; weight 260 grams and along the coronary vessels there was considerable fatty deposit.

LIVER was small, hard, finely nodulated along all surfaces, and on section showed marked cirrhosis. It gave a perfect picture of the "hob-nail" liver on the surface. The weight was 1100 grams; the capsule was adherent.

SPLEEN was found enlarged, congested, weight 430 grams. On section, cut surface showed a marbled appearance with increase of interlobular tissue. Sections of the spleen and liver were pre-

properly. He was frequently reprimanded for these bad habits, and for keeping his mouth open so that saliva escaped. These symptoms in the beginning were very mild and appeared only at times; at other times the boy would seem quite normal. During the last two years these symptoms became more pronounced and there were fewer remissions. He began to have "shaking spells"; that is, more or less constant movements and twitchings. Restlessness and shaking of the hands became pronounced. Also his speech became unintelligible. Even 3 years after the onset he sometimes had remissions for a short period of time so complete that only his close relatives, knowing his condition, noticed that he was not quite "right". During the 4th and 5th years of the disease he showed marked changes in his disposition. He became dull and apathetic at times; at other times he would have periods of excitation in which he would laugh and talk incoherently. For instance, at one time when guests were received at his home he came into the room laughing without reason and talking loudly but incoherently. Previously he had always had a cheerful and pleasant disposition and was easily managed at home and in school. During the last year (the 6th year of the disease) he often shook so that he could not walk and he had to be kept in bed. Sometimes he apparently would lose consciousness and fall onto the floor in regular convulsions. During the last summer on two occasions he attempted suicide: once he tried to throw himself into water; on another occasion (June, 1927) he took "rat poison" and swallowed it. A doctor induced vomiting. The patient vomited blood, was cyanotic and had convulsions; within two or three weeks he recovered from this poisoning. In the autumn of 1927 he became practically bedridden and because of his extreme motor restlessness he was brought to the Monson State Hospital on November 11, 1927.

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upper abdominal quadrant. Plantar reflexes are difficult to elicit on account of continuous movements of the toes on both feet; they seem to be flexor on both sides. Temperature on admission was normal.

November 22: Patient cannot stand up from the sitting position or get up from the lying position into the sitting position without assistance, because of extreme rigidity and involuntary movements disturbing any purposeful act he attempts to do. When sitting on the edge of the bed and ordered to lie down, he falls backward with legs flexed as if he were sitting, like a wax statue. He shows a rise of temperature, seems to be more apathetic and rigid. Examination of urine reveals presence of albumin, blood and hyaline casts. Blood pressure: systolic 90; diastolic 50. Pulse is irregular and rather slow; 60 per minute. Percussion of the liver shows, so far as it can be ascertained, reduction of liver dullness, about one inch above costal margin in mammillary line. Spleen dullness on the contrary seemed to be enlarged, so as to produce a dullness over the lower left lung base. There is no sign of pulmonary complication. Wassermann on the blood done at the time of admission was reported negative.

On November 24, patient was transferred to the hospital ward because his condition was rapidly growing worse. He showed rise of temperature with irregular course oscillating between 101-104°. Emaciation was rapidly progressing, swallowing seemed to be more and more difficult; he became incontinent of urine and feces.

On Friday, December 2 he had two severe convulsions after which he remained in a comatose condition and died December 3, at 5:15 P. M.

Autopsy Report

Autopsy was performed by Dr. Miller and Dr. Belson two hours after death.

HEAD: On opening the skull the dura mater was found extremely adherent to the cranium and to the pia mater. Along the longitudinal sinus these caused tearing of the right hemisphere in the longitudinal fissure. On incision of the dura about 20 cc. of fluid

FIGURE 2. Gross section of the right hemisphere showing degeneration in the striatum, especially in the putamen.

escaped. The pia was somewhat opaque and there was extensive vascular congestion.

BRAIN: Weight, 1310 grams, consistence was softer than the average. Convolutions were somewhat flattened, moderate hydrocephalus was found, the lateral ventricles being dilated, with the posterior horns extending well into the occipital lobes. Capillary injection was found throughout the white and gray matter of the brain.

Basal ganglia, especially putamen on both sides, appeared dark yellowish in color. Left hemisphere: There was an unfortunate cut made longitudinally through the basal ganglia region making it difficult to examine. The outer segment of the lenticular nucleus was pigmented, softened and contracted. Right hemisphere: The whole was cut in coronal sections. The putamen was pigmented, softened and contracted. A whole brain section was preserved in Kaiserling and mounted as gross specimen.

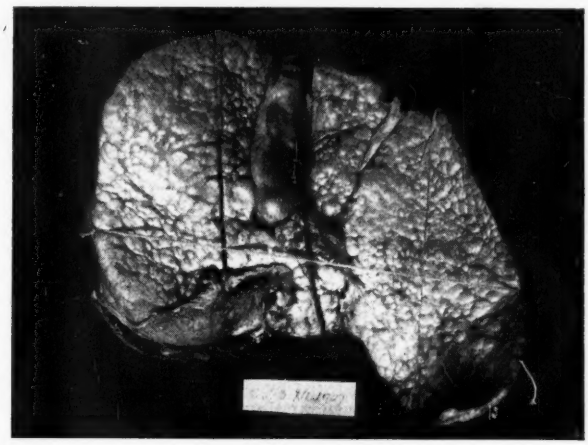

FIGURE 3a.

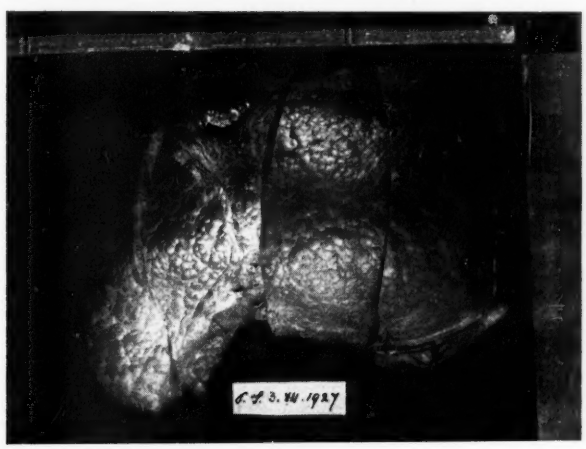

FIGURE 3b.

Both pictures are photographs of the liver showing nodular cirrhosis.

THORACIC CAVITY: Lungs were found extremely small, soft and gray-whitish in color. Right lung: 260 grams; left: 250 grams.

HEART did not show any valvular defects; weight 260 grams and along the coronary vessels there was considerable fatty deposit.

LIVER was small, hard, finely nodulated along all surfaces, and on section showed marked cirrhosis. It gave a perfect picture of the "hob-nail" liver on the surface. The weight was 1100 grams; the capsule was adherent.

SPLEEN was found enlarged, congested, weight 430 grams. On section, cut surface showed a marbled appearance with increase of interlobular tissue. Sections of the spleen and liver were pre-

served in Kaiserling and mounted as gross specimens.

KIDNEYS showed considerable congestion; capsule adherent.

GASTRO-INTESTINAL TRACT showed no obvious abnormalities.

Microscopic Examination

BRAIN: Specimens taken from the *Right Striatum* were cut horizontally at a level which shows the

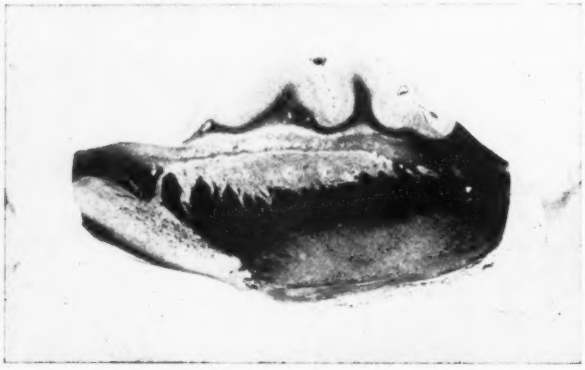

FIGURE 4. Microscopic portion of right striatum with Weigert's stain. There is obvious atrophy of the whole lenticular nucleus and a marked demyelinization of the external capsule. Magnified 2½.

thalamus, the caudate nucleus and the lenticular nucleus, all in one slide. With the low power there appeared to be a normal caudate nucleus, a normal thalamus, an intact internal capsule, and a normal appearing Island of Reil. The putamen was considerably shrunken, and the external capsule showed a moth-eaten appearance in some places (see figure 4). Microscopically there appeared a marked blood vessel engorgement in all parts of the slide.

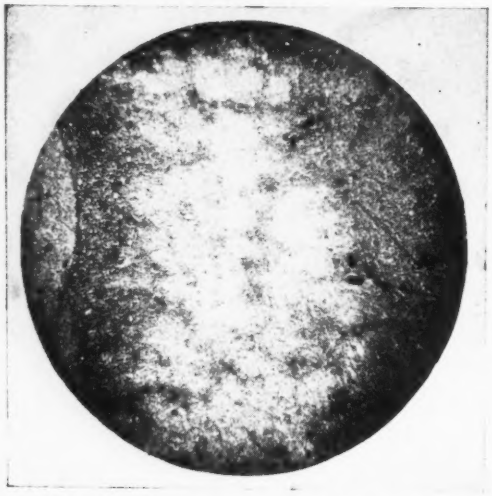

FIGURE 5. The small part of the lesion in the external capsule seen in Figure 4, but magnified by 40. Compare Lüthy's[12] case.

The *caudate nucleus* contained many large nerve cell nuclei, very pale in staining qualities, with prominent nucleoli.

The *thalamus* as a whole did not show as marked degenerative changes as did the putamen or the caudate nucleus. There were numerous small nuclei present, some of the nerve cells showing eccentric nuclei and dissolution of cell substance. The blood vessels showed little perivascular infiltration. In many places there was marked satellitosis of the degenerating nerve cells.

External Capsule: The demyelinated areas of the external capsule appeared under the microscope as pale areas in the darkly staining tract; the areas were irregular in size and distribution; they were not found particularly around blood vessels. The nerve fibres could be seen in them as pale parallel bands. There were a great many glia nuclei, especially in the demyelinated spots (figure 5).

The *Left Striatum* was cut in frontal sections at two levels. At the more anterior the section showed an increase of blood vessels at the junction of the lenticular nucleus and internal capsule. The putamen was alone represented here and showed changes similar to those described in the putamen on the right. Many of the nerve cells showed marked pigmentation and many of them were large and swollen with pale nuclei and a small amount of cytoplasm.

The *caudate nucleus* had cell changes like those described on the right. There was a thickening of the ependyma and rather marked sub-ependymal gliosis. A specimen from a lower level showed globus pallidus, putamen, anterior commissura and amygdala. Here there was marked cavitation in the putamen (see figure 6). The blood vessels were en-

FIGURE 6. Low power view of the lesion in the left lenticular nucleus; Weigert's stain. Note the increase in number of and size of the blood vessels. Magnification about 3.

gorged and increased in number and there were many small glial nuclei. In general, the appearance was like that described on the right. The globus pallidus with the Weigert stain showed no abnormality, but with cresyl violet one found a scarcity of nerve cells and those that were present were often swollen. There was also a moderate increase of glial nuclei. Around the blood vessels there were a few endothelial cells, lymphocytes and gitter cells. In other words, there was a moderate degenerative change, but nothing to be compared with the change in the putamen.

Mid Brain: The mid brain showed no abnormality with the Weigert stain; with cresyl violet it was apparent that there were numerous vacuoles in the nerve cells of the substantia nigra, but the pigment was well preserved. In the red nucleus there was more or less swelling of the nerve cells. In the locus caeruleus many of the nerve cells were swollen and had eccentric nuclei. The nerve cells of the third nuclei were also moderately swollen. There was moderate gliosis.

Cerebellum and Dentate Nucleus: There was marked engorgement of all smaller vessels, but otherwise there was no marked abnormality except that in the dentate nucleus many of the cells were swollen and contained large granules of fat observed after

staining with scharlach r. Around a few of the nearby blood vessels there were rings of round cells.

Medulla: In the medulla the Weigert specimen showed irregular areas near the lower middle part of each pyramidal tract where the myelin was pale. The nerve cells appeared normal throughout except for moderate swelling in some of the cells of the olive. There was engorgement of most of the smaller blood vessels.

Cerebral Cortex: The specimen from the left *precentral gyrus* showed normal meninges and blood vessels. There were no marked abnormalities of the nerve cells except the large pyramidal cells which showed chromatolysis and unusual deposits of pigment. The right precentral gyrus showed some moderate degeneration of the large nerve cells in lamina IV. Around some of the small blood vessels there were few lymphocytes.

Frontal Lobe: The left frontal lobe showed changes almost identical with those changes described for the precentral, except that there was more satellitosis around the degenerating nerve cells which were not especially confined to any one layer. A specimen from the right frontal lobe showed moderate demyelinization of the fine fibres in the mid-cortical layers. Many of the nerve cells showed degeneration. There was no perivascular infiltration. There was rather marked marginal gliosis.

Occipital Lobe: The left occipital lobe showed moderate swelling and pallor of many of the nerve cells, especially the larger ones. Of the smaller nerve cells many stained darkly and had eccentric nuclei. There was engorgement of the capillaries. A specimen from the right occipital region was similar except that around some of the large blood vessels there was a ring of lymphocytes with an occasional large mononuclear cell.

Temporal Lobe: A specimen from the right neocortex was normal except for moderate engorgement of the blood vessels. The left Ammon's horn showed many of the pyramidal cells with swollen nuclei and few Nissl granules. Another specimen had similar cell changes but more satellitosis.

LIVER: The liver showed a proliferation of connective tissue especially around the portal vessels and to some extent around the central veins. Most of the lobules showed evidence of fatty degeneration, and around the central veins the liver cells showed evidence of cloudy swelling and disintegration. There were some regenerating liver cells evidenced by mitotic figures. There appeared to be some hypertrophy of the bile ducts. There also seemed to be a peripheral degeneration of the liver cells in many lobules.

HEART: Although the muscle fibres did not stain evenly there appeared to be no degeneration. There was no evidence of any inflammatory process, no Aschoff bodies detected, nor any cellular exudate. There was considerable pericardial fat.

KIDNEY: The glomeruli and blood vessels appeared normal. The tubules exhibited cloudy swelling with desquamation into the lumen of the tubule.

SPLEEN: The spleen showed a very marked degree of cirrhosis. There were traces of normal structure—lymph nodules, germinal centers, stroma, etc.; but much of the normal appearance was lost in the marked proliferation of connective tissue. The fibrosis was very marked around the larger blood vessels.

LUNG: There was slight thickening of the alveolar walls in some areas, and slight increase in fibrous tissue around the larger blood vessels.

COMMENT

This case of hepato-lenticular degeneration presented a fairly typical clinical picture and course, but there were no other members of the family affected, except, perhaps, the sister who died at fourteen with dropsy, jaundice, and fever said to be due to heart disease. This may well have been cirrhosis. Barnes' cases prove that the liver disease may cause death before the neurologic signs are conspicuous.

The autopsy demonstrated the usual degenerations in the lenticular nucleus and liver. The spleen was affected more than usually, having a fibrosis almost as marked as that of the liver. The nerve cell destruction was most marked in the lenticular nucleus, but all the basal ganglia were affected as well as many hind-brain nuclei. It is perhaps significant that the dentate and the olivary nuclei had more pathology than others, and that these are just the nuclei which stain deeply in jaundice. This suggests that primarily the disease affects the liver, and that the toxin, whatever it may be, selects the basal ganglia and certain hind-brain nuclei because these have an affinity for bile-pigments. In searching for the etiologic agent, therefore, one should think of substances injurious to the liver and not rest with the rather hopeless thesis that the disease is a familial, neural abiotrophy. Many facts point to the possibility that some metallic poison affecting several members of a family might produce the symptoms, pathology and epidemiology.

BIBLIOGRAPHY

1 Wilson, S. A. K.: Brain, 34:295, 1912.
2 Barnes, S. and Hurst, E. W.: Brain, 48:279, 1925.
3 Barnes, S. and Hurst, E. W.: Brain, 52:1, 1929.
4 Vogt, O.: Jour. f. Psychol. u. Neurol. 31:245, 1925.
5 Spielmeyer, W.: Medicine, 10:243, 1931.
6 Huwer, G: Ztschr. f. Geburtsh. u. Gynak. 94:150, 1929.
7 Pines, L.: Ztsch. f. d. ges. Neurol. und Psychiat. 118:307, 1929.
8 Findlay, G. M.: Brit. Jour. Exper. Path. 5:92, 1924.
9 Edsall, D. L., Wilbur, F. P., and Drinker, C. K.: J. Indust. Hyg. 1:183, 1919.
10 Mella, H: Arch. Neurol. & Psych. 11:405, 1924.
11 Barnes, S. and Hurst, E. W.: Brain, 49:36, 1926.
12 Lüthy, F.: Deut. Ztsch. f. Nervenheil 123:129, 1931.

A STUDY OF 102 CASES OF ATROPHIC ARTHRITIS

III. Etiologic Factors

BY MILLARD SMITH, M.D.*

THE etiology of atrophic arthritis is not susceptible to a simple statistical analysis. The causes of the condition appear to be so subtle and so diverse that each subject of the disease must be treated individually in order to bring out in true light the succession of events which finally lead to arthritic manifestations. Rarely are patients seen in whom a single cause can be confidently predicated. The study which has been reported in the preceding paper[1] suggests that arthritis of the atrophic type has its inception in a peculiarly constituted individual.

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These deviations from the normal which precede the arthritis are of a type for which causes other than infection could readily be entertained. The rôle which infection plays in this disease is not to be minimized, but neither are other factors which occur with a regularity almost equal to that of infection.

The series of cases which has been reported in the preceding two papers[1, 2] has been studied from the above point of view. A very high proportion of these patients has given a history which, in addition to infection, represents a succession of physiologic insults of major degree as preceding the onset of arthritis. The impressiveness of these factors is lessened, unfortunately, by the use of any statistical presentation which might be adopted.

With the exception of three of these illnesses, they are all of an infectious nature. They are tabulated in Table II.

TABLE II

INCIDENCE OF DIRECTLY PRECEDING ILLNESS

Grip:

Males		Females	
2a	1	2a	2
2b	1	2b	1
2ab	1	2ab	1

Thyrotoxicosis with thyroidectomy:

Males		Females	
	0	2a	2

Scarlet Fever:

Males		Females	
2a	1		0

TABLE I

INCIDENCE OF INFECTED FOCI IN TOTAL GROUP OF 102 PATIENTS

	Abscessed teeth		Chronic tonsillitis		Chronic rhinitis		Chronic sinusitis		Chronic prostatitis				Kahn ++++		Wass. ++++	
									Non-specific		Gonorrheal					
	Type	Cases	Type	Cases	Type	Cases	Type	Cases	Type	Cases	Type	Cases	T	C	T	C
Males	2a	4	2a	12	2b	1	2a	1	2a	2	2a	3			2b	1
	2b	10	2b	13					2b	1	2b	3				
	2ab	1	2ab	1												
	5	1	5	2												
											Salpingitis					
Females	2a	11	2a	20	2b	1	2b	1			2a	1	2b	1	5	1
	2b	6	2b	12									2a	1		
	1	1	2ab	1												
	1, 5	1	4b	1												
			1	2												
			5	1												
			1, 5	1												

Table I is given to show the incidence of infected foci in this group of patients. It compares approximately with Table VI of Pemberton and Peirce's study[3] of a much larger number of cases. Over-enthusiasm on the subject of focal infection would make it very easy to stop at this point and confine further study to the bacteriology of these foci, for the incidence of infected foci is high in both the present series and in the reported study of Pemberton and Peirce.

Two of the four subjects which were shown to have syphilis are of interest, because no other causes for the arthritis could be ascertained after careful study. The one, a male Type 2b, developed arthritis four years after his penile lesion. The other, a female Type 2a, developed arthritis at the age of 67 years, the date of syphilitic infection not being known. Neither patient had any of the tertiary signs of syphilis, unless the vascular aspects of atrophic arthritis could be considered such an indication.

Pemberton and Peirce[3] have reported, in a group of 232 civilians, the incidence of a preceding acute infection as 28 per cent. A directly preceding illness occurred in 38 patients of the present series, an incidence of 37 per cent.

Acute Tonsillitis:

Males		Females	
2a	2	2a	2
2b	2	2b	3
		4b	1

Quinsy Sore Throat:

Males		Females	
2a	1		0

Multiple Furuncles:

Males		Females	
2b	1		0

Pneumonia and Empyema:

Males		Females	
	0	2a	1

Acute Gonorrhea:

Males		Females	
2a	3	2a	1
2b	1		

Typhoid Fever:

Males		Females	
2b	1	2a	1

Idiopathic Diarrhea:

Females	
2a	1

Puerperal Infection with Phlebitis:

	Females
2a	1

Urticaria:

	Females
2b	1

Acute Tonsillitis and Urticaria:

	Females
2b	1

Pregnancy:

One Type 2a female had three pregnancies in 5 years with arthritis exacerbated after each pregnancy.

One Type 2a female had arthritis begin during 6th month of third pregnancy.

Pemberton and Peirce have referred to these acute illnesses as "precipitating factors". This is because these authors strongly suspect the presence of additional causes of the disease. Pemberton has repeatedly cautioned against a too rigid theory of focal infection in relation to the etiology of chronic arthritis. Table II indicates considerable diversity in types of infection. Should a rigid point of view with regard to focal infection in relation to arthritis be maintained, there are only two explanations tenable to account for the onset of arthritis directly after these acute illnesses. First, there is no specific organism which causes atrophic arthritis; or, secondly, there may be a specific organism of the disease, which finds conditions favorable for its growth in a subject which has been debilitated by acute infection. The considerable diversity of organisms which have been isolated from the blood stream and tissues of subjects of this disease would testify to the truth of the first explanation. The data which have been reported by Cecil, Nicholls and Stainsby[4] would suggest the possible truth of the second explanation. It must be reserved that this latter investigation has not been unequivocably confirmed in other laboratories[5]. Taking into account only part of the clinical facts of this disease, it is quite easy to make out a strong case for the specific implications which have been tentatively drawn by Cecil and his associates with regard to the nonhemolytic streptococcus. These implications are not so tenable when all facts of the disease are taken into account. The author wishes to state emphatically his conviction that there is no specific bacterium of the disease, and furthermore, that the disease can be caused by other factors in the absence of infection. On the other hand, he is in perfect agreement with the statement of Dawson, Olmstead, and Boots[5] that "the majority of cases of this disease represent the response of the affected tissues to products of *Streptococcus hemolyticus* absorbed from a distant focus".

Acute infections certainly do seem to be the sole factor in precipitating the disease occasionally in individuals who previously have been healthy and free from focal infection. How, then, are we to explain the action of acute infection, on the one hand, and chronic infection, on the other, as primary etiologic causes? This cannot be done logically if the view is held that the disease is primarily a joint disease and due to local infection. It can be explained if the systemic aspects are considered the primary feature. These systemic aspects have been shown in the preceding paper[1] to be related to neurovascular derangements. It is well known that acute infections cause neurovascular imbalance; and the same signs can be noted in many individuals who are obviously suffering from chronic focal infection. Once such a state of depletion and imbalance is produced, it is not difficult to see how other factors which formerly were of minor consequence could continue to propagate the constitutional state even in the absence of infection. It would not be surprising at all, if, in such subjects, a diligent bacteriologic search would lead to the discovery of the presence of bacteria with a low grade of virulence. This invasion might be entirely secondary, and have nothing whatsoever to do with the primary causes of the disease.

Acute and chronic infections are entitled to head the list of "precipitating causes" of atrophic arthritis, even though they by no means complete the list. Pemberton and Peirce[3] have given a statistical tabulation of some of these other factors upon the heels of which the disease follows so closely and with such frequency that they must be given more than a coincidental significance. A similar tabulation for the present series of cases is given in Table III. A little more than 50 per cent. (52 patients) of the series have given evidence of depleting and unbalancing experiences which are closely related chronologically to the onset of their disease.

TABLE III

INCIDENCE AND NATURE OF EMOTIONAL AND PHYSICAL TRAUMA AS DISTRIBUTED BETWEEN SEXES AND TYPES OF ATROPHIC ARTHRITIS

Emotional upset due to death of wife: Male Type 2b.
Marital troubles: Female Type 1, 5.
Business failure: Male Type 2a.
Four of patient's children died in close succession from influenza, much worry, focal infection present: Male Type 2b.
Brutal husband, raped daughter, shot himself, then patient had nervous breakdown followed by arthritis: Female Type 2a.
Automobile accident, no injury: Female Type 2b.
Brutal, unfaithful husband: Female Type 2a.
Nervous breakdown: Female Type 2a.
Automobile accident, no injury, father killed: Female Type 2a.
Automobile accident, no injury, both parents killed: Male Type 2b.

Overwork: Male Type 2a; Females Types 2a, 2b, 2ab.
Trauma (sprain): Males Types 2a, 2b; Females Types 2b, 2b.
Trauma and exposure to cold and damp: Female Type 2ab.
Fell downstairs: Female Type 2a.
Multiple extraction of teeth: Females Types 2a, 2a.
Tonsillectomy: Female Type 2b.
Surgical removal of atrophied testicle: Male Type 2a.
Long hours on feet: Male Type 2b.
Exposure to cold and damp: Males Types 2a, 2b, 2b, 2b; Females Types 2a, 2b.
Alcoholism and exposure: Male Type 5.
Repeated pregnancies: Females Types 1, 2a, 2a, 2b.
Miscarriage: Female Type 2b.
Overwork, repeated pregnancies: Female Type 2b.
Overwork and worry over finances: Females Types 2a, 2a, 2a, 2a, 2b, 5.
Overwork and violent death of granddaughter: Male Type 2a.
Brutal father, exposure, septic tonsils: Female Type 2b.
Two miscarriages, two pregnancies, divorce: Female Type 2a.
Three pregnancies and divorce by 25 years, remarried, one pregnancy, grip: Female Type 2a.
Trauma, death in family, financial worries: Male Type 2a.
Privation and exposure in Russia during war: Male Type 2a.
Automobile accident with injury, marital incompatibility: Female Type 2b.

An analysis of Table III will permit a division of these precipitating causes other than infection into three groups. One series, comprising the first ten tabulations, represents a group of factors which produce, or are evidences of, profound emotional trauma. The next fourteen tabulations represent factors which cause physical trauma. The last eight present a combination of physical and emotional trauma. Even those which have been grouped under physical trauma are likely to be associated with marked emotional stimulation.

Unfortunately, focal infection complicates the greater portion of cases showing physical and emotional trauma, so that were the rôle of the latter to be judged in such cases alone, it would lose much of its significance. Occasional instances, however, allow us to place significant emphasis upon emotional and physical trauma. The following two histories are examples of the onset of atrophic arthritis after emotional and physical trauma in the absence of focal infection:

A young man of 20 years, a local prize fighter, but carpenter by trade, who had been perfectly well and vigorous up to the time of his present illness, except for yearly attacks of hay fever precipitated by specific sensitization to ragweed pollen, was buried completely and suddenly beneath a pile of loose dirt while working in an excavation. He did not lose consciousness, and was removed within ten minutes without signs or symptoms of suffocation becoming evident. On examination at the time he had no abrasions and denies physical injury. He admits severe emotional upset while buried, and did not become stabilized for many hours afterward. He felt extremely weak for some time after the experience. That evening, six hours after the accident, he began having aching pains in his hips, back, shoulders and knees. The next day these pains became more severe, and from that time to the present, a year hence, he has had repeated attacks of arthritic pain in various joints, with typical atrophic arthritis bone changes in the right hip and spine. He also shows the typical objective vascular manifestations of the disease in his hands and feet. No foci of infection have been discovered after very careful search, and no evidence has been obtained for focal absorption. The fact that he is sensitized to ragweed pollen would indicate that he already had a constitutional defect, but this is not referable to focal infection, and cannot have anything to do with the arthritis directly. In fact, it was found that the injection of ragweed pollen at regular intervals was followed by a constitutional allergic reaction which coincided with marked subsidence of active signs of arthritis as well as symptoms.

The second patient was a young woman of 21 years, a nurse, who had been unusually well throughout her training, and who on physical examination showed no physical defects aside from an active vasomotor system. There were no remnants of tonsillar tissue following tonsillectomy in childhood, and the teeth were negative by x-ray. She developed severe aching in the right elbow, with rapid progression of joint signs of atrophic arthritis of the subacute polyarticular with periarticular swelling type (except that the condition remained monarticular), with later bone destruction revealed by x-ray, all this coming on directly after an automobile ride during which she had her right elbow exposed, out of the window of the car, to a very cold wind.

These two patients, and occasional others of a similar type, are strong evidence for the hypothesis that emotional and physical trauma can be the cause of atrophic arthritis. Furthermore, the very high incidence of these factors in patients of this series who do have focal infection would indicate that they are of importance. And finally, the nature of the disease, when it is viewed as a constitutional malady, provides an explanation whereby these factors could be expected to play specifically an etiologic rôle. It is equally as reasonable to explain the production of neurologic and vascular reactions leading to the constitutional configuration of the rheumatoid syndrome and the actual production of atrophic arthritis, as it is to explain the marked physical changes associated with hysterical states as being brought about by mental conflicts. The disease cannot be contemplated clinically without gaining the conviction that it is associated with profound physiologic depletion. Aside from infection, there is no more important cause of physiologic depletion than that of emotional and physical trauma or strain.

Much has been written about the menopause in relation to arthritis. The relation has seemed so pronounced in some cases that the unfortunate term "menopause arthritis" has been introduced into arthritic nomenclature. It will probably have to remain purely as a clinical concept, for scientific proof that the menopause can be a cause of atrophic arthritis, or even hyper-

TABLE IV

MENOPAUSE IN RELATION TO ONSET AND TYPE OF ARTHRITIS

Type	Age onset menopause	Age onset arthritis	
2ab	30	36	Artificial menopause (hysterectomy). Severe grip directly preceding onset arthritis. Marital difficulties and divorce 1 year preceding arthritis.
2a	50	51	Widow. Worked to support son through college, financial worries. At 47 years one son died of rheumatic heart disease. At 49 years mother died of arthritis.
2a	35	53	Arthritis followed pneumonia and empyema.
2a	?	40	Nervous breakdown; brutal husband who raped daughter and shot self.
2a	44	45	Artificial menopause (hysterectomy). Brutal unfaithful husband. 3½ yrs. ago erythema nodosum for 3 months. 2½ yr. ago acute gonorrhea from husband; then hysterectomy. 8 mos. later acute gonorrhea again. One mo. later arthritis began with fatigue, nervousness and general bone tenderness.
2a	49	49	Fell downstairs, badly bruised. 4 mos. later onset of arthritis; 6 mos. later onset of menopause.
2b	?	41	Arthritis began directly after a miscarriage which caused a long illness. Septic tonsils present.
2b	52	60	Muscular rheumatism all her life. Arthritis became persistent with joint signs after spraining elbow.
2ab	36	46	Artificial menopause (hysterectomy). Marked instability after hysterectomy. Onset of arthritis directly after husband failed in business; much worry. Septic tonsils. Precipitating cause: bruised wrist with exposure to cold and damp.
5	?	65	Cared for helpless mother up to one year after onset of arthritis. Injury to knee 4 yrs. before onset of arthritis. Carbuncle 4 yrs. before arthritis. Frequent tonsillitis up to one year before onset of arthritis. Wassermann 4 plus.
2a	?	67	Worked as cleaning woman. No illness or injury. No focal infection. No menopause symptoms. Kahn 4 plus.
2a	?	52	No focal infection, illness or trauma.
2a	43	41	Transitory rheumatism for 20 yrs. No joint signs. At 41 years arthritic signs and symptoms became progressive. 3 pregnancies. Septic tonsils and abscessed teeth. Very unstable.
2a	40	41	Frequent Quinsy in past; septic tonsils. In automobile accident without injury, father killed, just before onset of arthritis.
2b	?	50	In automobile accident, wrenching left hip and dislocating shoulder 10 mos. before arthritis. Marital incompatibility. Septic tonsils.
1, 5	39	43	Arthritis began at time of divorcing second husband. Greatly exacerbated 1½ yrs. later immediately after automobile accident. Abscessed teeth and septic tonsils.
2a	49	47	Arthritis followed multiple extraction of teeth. No menopause symptoms.
2a	48	44	Abscessed teeth and septic tonsils. No trauma or illness.
1	?	55	Seven pregnancies. Septic tonsils.
2a	48	54	Overwork and worry. Severe grip preceding arthritis. Septic tonsils.
2a	43	45	No menopause symptoms. Arthritis followed directly exposure to cold and damp. Septic tonsils.
2a	?	40	Arthritis followed puerperal infection and milk leg.
2a	50	52	Seven pregnancies. Much worry and increasing nervousness with menopause. At 50½ yrs. thyroidectomy followed by gradual onset of arthritis. Septic tonsils.
2a	51	52	Menorrhagia and hysterectomy at 51 yrs., followed by fatigue, weakness, and nervousness. Six mos. later many teeth extracted with profuse hemorrhage; arthritis followed immediately. Abscessed teeth.
2a	49	46	Typhoid fever, death of sister, nervous breakdown, then onset of arthritis. No focal infection; tonsils and teeth removed 10 yrs. ago.
2a	47	47	Had partial hysterectomy eight yrs. previously. No preceding illness or trauma. Septic tonsils and abscessed teeth present.
2b	45	41	Seven pregnancies. No preceding illness or trauma. Septic tonsils and abscessed teeth present.

trophic arthritis, hardly seems feasible. Here again, we find very few cases in which the menopause is the only factor which can be incriminated. Those females of the present series who fall within the age group of the menopause have been tabulated in Table IV. The presence of factors which have been mentioned above are included in this table. There is not a single case in which there are not other complicating factors, even though there are six patients in whom arthritis began within a year of the menopause. It is hardly logical to maintain the premise that the menopause contributes to atrophic arthritis on the basis of data presented in this form. The curves for incidence of atrophic arthritis by age groups which appeared in Chart I of the first paper[2] give a suggestion that the menopause may contribute to atrophic arthritis; but perhaps the most convincing argument for the importance of the menopause as at least a predisposing factor is based upon the concept of the disease which was presented in the second paper[1]. The atrophic arthritic, or rheumatoid, state is directly associated with a profound neurovascular disequilibrium; likewise, so is the menopause in a very significant number of subjects. Since the two states have this very distinct physiologic characteristic in common, it is entirely logical to conclude that the menopause should be a disposing cause of the disease.

Table V is presented in order to correlate the distribution of the various etiologic factors which have been discussed individually, and to show the difficulty which is presented when one sets about to prove by way of statistics that a single factor may be the cause of atrophic arthritis. Only in 20 cases was there uncomplicated focal infection; in only ten cases uncomplicated illness or trauma; and only 5 patients had no apparent cause of the disease, two of these having syphilis. These cases combined comprise 34 per cent. of the series. A sufficient number remain in which there are present two or more factors to emphasize the necessity of some other method of study of the etiology of atrophic arthritis.

TABLE V

ETIOLOGIC FACTORS AND PRECIPITATING CAUSES COMBINED

Focal Infection	*Males* Type	Cases	*Females* Type	Cases
Not detected and no other apparent cause.	2a	1	2a†	3
	2b*	1		
Not detected but immediately preceding illness or trauma.	2a	2	2a	5
	2b	1	2b	1
			2ab	1
Present without other immediate cause.	2a	4	2a	4
	2b	7	2b	2
	5	1	1	1
			5	1
Present but illness also; menopause included.	2a	4	2a	6
	2b	4	2b	3
	2ab	1	4b	1
Present but trauma also; repeated pregnancies and miscarriage included.	2a	3	2a	8
	2b	6	2b	7
	5	1	2ab	1
			1	1
Present but illness and trauma also.	2a	4	2a	8
	2b	1	2b	3
			2ab	1
			5	1
			1, 5	1

*Arthritis began 4 years after chancre. Wassermann 4 plus.
†One patient has Kahn 4 plus.

SUMMARY

A study of etiologic factors in 102 cases of atrophic arthritis has been presented. It has been shown that physical and emotional trauma occur with sufficient frequency in these cases so that physiologic strain and depletion must be considered seriously as playing an etiologic rôle in the disease. Those cases in which the menopause might appear to play a causal rôle are shown to be complicated by the presence of focal infection and the occurrence of emotional and physical trauma. Therefore, the action of the menopause cannot be postulated entirely on the basis of chronologic relations, but the nature of the disease must be taken into consideration as well.

REFERENCES

1 Smith, M.: A study of 102 cases of atrophic arthritis. II. Constitutional defects. New Eng. J. Med. 206:160 (Jan. 28) 1932.
2 Smith, M.: A study of 102 cases of atrophic arthritis. I. Introduction; statistical data. New Eng. J. Med. 206:103 (Jan. 21) 1932.
3 Pemberton, R., and Peirce, E. G.: A clinical and statistical study of chronic arthritis. Am. J. M. Sc. 173: 31, 1927.
4 Cecil, R. L., Nicholls, E. E., and Stainsby, W. J.: Bacteriology of blood and joints in chronic infectious arthritis. Arch. Int. Med. 43: 571, 1929.
Cecil, R. L., Nicholls, E. E., and Stainsby, W. J.: Etiology of rheumatoid arthritis. Am. J. M. Sc. 181: 12, 1931.
5 Dawson, M. H., Olmstead, M., and Boots, R. H.: Studies on the etiology of rheumatoid arthritis. I. Bacteriological investigations on blood, synovial fluid and subcutaneous nodules in rheumatoid arthritis. Proc. Soc. Exper. Biol. & Med. 28: 419, 421, 1931.

THE NEW HAMPSHIRE MEDICAL SOCIETY

EARLY DIAGNOSIS OF CANCER OF THE LARYNX*

BY THOMAS J. MORRISON, M.D.,† SOMERSWORTH AND ROCHESTER, N. H.

CANCER of the larynx occurs in five per cent. of all malignant tumors of the body.

Cancer is at first a local and fairly limited disease. It should, therefore, be curable by local and fairly limited operations. To secure this there are two important requisites; the first is that a correct diagnosis be made while the disease is in an early stage, and the second is that it occurs in a region where it can be excised without the great risk to life and without severe mutilation.

These two provisos are fully met with in one group of laryngeal cancer while they are sadly wanting in the other group. For, as we well know, it is a little over fifty years since Krishaber of Paris drew attention to the great clinical difference between extrinsic and intrinsic cancer of the larynx. From a surgical and prognostic standpoint, the exact location of cancer in or about the larynx is of extreme importance. Clinically, the two recognized classifications, based on the location and on the extent of the disease, are extrinsic and intrinsic. The difference between these two groups is very striking. In the extrinsic group the symptoms are insidious and not well marked; diffusion is rapid; the lymphatics are early invaded, and operative treatment can only hold out hope of lasting cure in few cases unless a diagnosis is made early. The extrinsic cancer affects the outer surface of the larynx, or the borders of the aditus ad laryngem, which is the epiglottis, the aryepiglottic folds, the arytenoids, the retrocricoid region, and also the posterior surface of the larynx, the sinus pyriformis. These extrinsic cancers, in reality pharyngeal which have extended to the larynx, usually come under observation so late that the diagnosis is obvious. These cases are generally seen by the laryngologist much too late for successful treatment and early diagnosis is urgently needed. The problem of early diagnosis is intensified by the fact that cancer in itself does not produce any specific signs or symptoms and it is only when cancer cells form a tumor or ulcer that a series of mechanical symptoms and signs appear. These symptoms also develop slowly and insidiously, and it is unusual for the patient to consult a physician until such symptoms are well marked and often too late for successful removal of the growth. Moreover in a hidden cavity like the pharynx where there is room for the growth to expand unseen, the first symptoms are trivial and may be neglected until secondary growths are manifest in the cervical glands.

Intrinsic laryngeal cancer, as the term implies, starts within the larynx itself, that is, within the hyaline cartilage box, and is in large measure cut off from the possibility of early lymphatic involvement, owing to the fact that lymphatic supply of the region of the vocal cords is somewhat of a closed lymphatic system, so that there is little tendency at an early stage for these growths to spread to the surrounding parts until late in the disease. The intrinsic cancer chiefly attacks the vocal cords, particularly the anterior part of them, and also the ventricular bands or the parts below. Here the one definite symptom for many months is hoarseness. Ninety per cent. of all cases give immediate notice of their presence in a hoarse or altered voice; it is slight at first, and so may be insidious, but it is persistent and increasing. It causes no cough, no dysphagia, not even discomfort; appetite, health, vigor and weight are all unaffected and it is at this time that a diagnosis should be made without waiting for pain; this is a late symptom and is commonly referred to the middle ear. It is a curious fact that patients often question the probability of cancer because of the absence of early pain. By the time cough, blood-stained sputum, fetid breath, enlarged glands, wasting and cachexia have developed, the case is hopeless and nothing can be done for the patient.

Fortunately the intrinsic form of cancer in the larynx is much more common than the extrinsic form and is found more often in the male than in the female and in the middle ages of life, although it is now common in persons in their thirties, may be found in the twenties, and is not rare in persons between seventy-five and eighty years of age. Dr. John E. MacKenty of New York states that cancer is increasing, at least in this particular field. A certain percentage of this increase may be accounted for by greater knowledge and alertness on the part of the medical profession.

How is an early diagnosis to be made? By first realizing that any huskiness or hoarseness persisting for longer than the customary three weeks of an ordinary catarrhal laryngitis requires the skilled inspection of the larynx; this is done by indirect or mirror laryngoscopy. In certain instances you may have to use direct laryngoscopy. In conjunction with the examination of the larynx, necessary steps should be

*Read at the annual meeting of the New Hampshire Medical Society at Manchester, N. H., May 20, 1931.

†Morrison—For record and address of author see "This Week's Issue," page 244.

taken to rule out other laryngeal diseases causing hoarseness as:

1. Simple chronic inflammation: simple chronic inflammation secondary to chronic tonsillitis, sinusitis, infected teeth, chemical irritants, tobacco, alcohol, excessive use of the voice. (Under this head may be placed hyperkeratosis, pachydermia laryngitis and the rare chronic hyperplastic inflammations which are little understood and which often progress to obstruction and even death.)

2. Specific chronic inflammations; syphilis, rhinoscleroma, tuberculosis, and leprosy.

3. Benign neoplasms: papilloma, angioma, singer's nodes, etc.

4. Paralyses: the most commonly seen are, abductor, adductor, myasthenic aphonia and hysterical aphonia.

5. Prolapse of the ventricle of the larynx.

A careful clinical history is invaluable in directing a search in the most probable direction. In looking into the larynx, the following points must be noted: the position, size and characteristics when a growth is present, the extent, location and peculiarities if an inflammation is observed. Therefore we must differentiate incipient intrinsic cancer of the larynx and other incipient diseases of the larynx.

Cancer usually appears on the middle third of one cord, never on both simultaneously. The growth is usually forward, downward and outward or laterally, more rarely backward and upward and is well localized. Immobility of the affected side usually occurs early unless the cancer is very superficial; ulceration, pain and dysphagia are late occurrences.

Tuberculosis is prone to occur in the posterior part of the larynx, is bilateral and symmetrical and usually begins in the interarytenoid space and on both arytenoids. A pale edema is apt to appear over the involved area. Immobility of the cords is rare and develops late in the disease. It is almost always secondary to tuberculosis of the lungs; therefore an examination of the lungs should be made, an x-ray of the chest, and sputum examined for the tubercle bacilli. Ulceration, pain, and dysphagia occur early.

Syphilis as a rule involves the whole interior of the larynx in varying degrees. It may simulate chronic laryngitis or may resemble chronic laryngitis on one side of the larynx and a neoplasm on the other. It may simulate exactly a malignant condition, but its development is more rapid, more irregular and more diffuse. It yields unmistakably and promptly to treatment or therapeutic test. It cannot be too strongly stressed that a positive Wassermann reaction does not exclude cancer, nor does a negative reaction always exclude syphilis. If a laryngeal disease fails to recede under antisyphilitic treatment, syphilis may be excluded. Ulceration occurs earlier than cancer and pain is frequently absent even in advanced stages.

The inflammatory group of diseases of the larynx is characterized by diffuse thickening and a dull red discoloration of the entire larynx. There is no pain or dysphagia.

Benign neoplasms show a linear demarcation from the surrounding tissues, except tuberculoma which has an inflammatory aureola. Cancer blends with its surroundings. In cancer there is no distinct line of demarcation between normal and neoplastic tissue as is seen in benign growths. All signs of inflammation are absent unless cancer is grafted on syphilis or chronic laryngitis. Pain and dysphagia are not present.

Biopsy may help in making a diagnosis, but this should not be done until other methods of diagnosis have been used, because after the removal of a portion of the lesion and it is found to be cancer, you must operate within twenty-four hours as the metastasis is prompt.

Following is the differential diagnosis in the late condition of cancer, syphilis and tuberculosis of the larynx, when ulceration has taken place. The ulceration in cancer is not deep, not much excavated, the edges are irregular and granulated and there is only one ulceration. Syphilitic ulceration is deep, has sloping edge, with excavation deep into the tissue, sloughing of deep tissue in ulcer and only one ulceration. Tuberculosis: Multiple ulceration, superficial, the border is limited, irregular and undermined and the mucous membrane is pale.

The most important consideration, then, is an early diagnosis. This is not so simple as it might appear. Too often a patient does not consult a physician until the development of interference with breathing or some other symptoms which invariably denote extensive involvement. Education of the laity, which is being extensively carried on, can do much to offset this and should be encouraged by every practitioner. If every adult with chronic hoarseness could be impressed with the necessity of having his larynx examined and assured that the majority of cases of cancer of the larynx can be cured, there would be fewer cases of hopelessly advanced, incurable cancer presenting themselves for relief which cannot be given. Although it is my intention to emphasize the importance of early diagnosis of laryngeal cancer, I wish to call attention to the remarkable advances that have been made during recent years in the surgical treatment of the condition by such men as Dr. John E. MacKenty, New York, Dr. Chevalier Jackson, Philadelphia, Dr. George Portman, Bordeaux, France and Sir St. Clair Thomson, London, England.

At the present time the surgical mortality is not more than two or three per cent.; a negligible risk when one considers the serious nature of the disease and the absolute absence of any other

form of treatment worthy of a moment's consideration. Apart from this, surgical extirpation, if practiced early gives better results in intrinsic laryngeal cancer than in cancer of any other structure of the body. The reasons for this are that intrinsic cancer of the larynx usually occurs on the vocal cords in their anterior two-thirds, its growth is slow, the lymphatic drainage of the cords and part of the larynx is a closed system, and there is little tendency to extensive metastasis until late in the disease.

Treatment. The treatment of cancer of the larynx is always surgical but a diagnosis must be made early. As in cancer anywhere in the body, the success of the operation depends on complete removal of the diseased tissue whether it is by a conservative laryngeal fissure operation, or a radical laryngectomy. This depends upon the choice of the operator. If the cancer is inoperable, it is hopeless.

Summary. The maxim in cancer of the larynx should be early diagnosis and early operation for excellent results. In every adult with chronic hoarseness, cancer should be considered until proved negative. In this day when there is so much time, energy, and money spent to discover the cause of cancer it behooves every one of us at least to detect its presence especially where it can be easily seen and where it can be so effectively treated. Chronic hoarseness is a symptom, not a disease. If we would examine the larynx every time we see a patient complaining of hoarseness, I am sure we would make an early diagnosis of cancer of the larynx more often.

Discussion

Dr. Raymond H. Marcotte, Nashua: There is very little to add to Dr. Morrison's excellent paper on this subject. I think, in recapitulation, I should like to repeat two or three points. Foremost, that there are two types, extrinsic and intrinsic. Extrinsic is practically hopeless, so far as cure is concerned. Intrinsic can be helped if diagnosed in the early stage. Dr. Morrison has brought out the fact that hoarseness, persistent and increasing is an important symptom. Hoarseness in an adult, past 40, persistent and increasing, should be investigated by a specialist. It is one of the early symptoms. I think there are three conditions which should be kept in mind when a patient comes in with hoarseness—cancer, tuberculosis and syphilis. Tuberculosis can be ruled out usually by an x-ray if negative. As Doctor Morrison says, negative Wassermann does not necessarily mean syphilis is not the etiologic factor. Therapeutic tests will support either tuberculosis or syphilis. Early symptoms are vague and unfavorable for diagnosis, and depend a lot on the location and size of the growth. A growth on the vocal cord will produce early hoarseness, that on the epiglottis not until the later stages, bringing out the fact that the symptoms given in the older textbooks for cancer of the larynx should not be depended upon solely; that is, dyspnea, foul breath and gradual swelling; because when these arise, it has gone beyond the stage where it can be helped. Again I repeat that it is very important if there has been any hoarseness and it persists beyond three or four weeks, in an adult, forty or more, it should be investigated. Any continuous discomfort in the throat should be eliminated, because if a malignancy is present, and it is diagnosed early it can be relieved and practically cured.

He has mentioned that in cancer of the larynx if limited to one side, one cord being involved, fixation of the cord is present. Authorities disagree as to that point. Some say these are late symptoms, and some say early; that largely depends upon the type of the cancer, and its location. Another point is that the progress of the case must be watched; any case of prolonged hoarseness in an adult should be watched periodically, until it either clears or other manifestations present themselves.

Dr. George C. Wilkins, Manchester: I think if you followed Dr. Morrison's paper and all he said about his subject you will have observed that he reiterated the advice that is given in regard to all types of cancer. Pay attention to the early symptoms and recognize them. Also recognize the necessity of early treatment, and do not operate if the disease is too far advanced. That advice applies to any type of cancer we may come across. In early cancer the disease is always local and if the early symptoms are recognized as being suggestive of cancer it is possible to obtain more cures as a result of the early diagnosis. As the reader said, the extrinsic growth of the larynx is more insidious than the intrinsic and not recognized as early. It is rather presumptuous of me to attempt to discuss laryngeal cancer after two others have discussed it, because I must admit I know very little about it and have nothing to do with it. I am interested in cancer as a whole. I think I agree with everything that has been said in regard to treatment. I have watched the treatment of laryngeal cancer at the Memorial Hospital in New York, and surgery is primarily the method of treatment. They do combine radiation with it, and at the present time treatment is being carried on by two methods. They use a large 5 gram pack of radium externally when radiation is used prior to operation. This heavy radium pack dose seems to be more efficient than x-ray. Application of radium implants has also been successful in some cases. Patients who are obviously too far advanced should

only receive palliation from x-ray treatment or external radiation with radium. The question of tracheotomy comes up sooner or later unless it is an extremely early case. The best way to apply radium implants is to open the larynx and make the application, possibly removing some growth at the same time. There was recently reported a case of disease of the vocal cord, in which both cancer and tuberculosis were demonstrated in the same lesion—this is unusual. Treatment of the cervical nodes, if they have become involved, is by operation and implantation of radium after the removal of the nodes. Treatment today must be a combination of these methods, each one depending upon the individual case, and the type of treatment to be given rests entirely upon the experience of the surgeon.

DR. MORRISON (closing): The main object of my paper was to arouse interest in laryngeal cancer. I wish to thank the doctors who discussed this paper and, in conclusion, if the public mind could be oriented on one fact that progressive hoarseness is a danger signal, if the profession would urge a thorough and competent investigation of this danger signal, then we should be doing our honest best with our allotted five per cent. share in this dire disease and would eradicate to a large extent the unspeakable misery attendant upon uncontrolled laryngeal cancer.

IOPAX IN THE DIAGNOSIS OF THE DISEASES OF THE GENITO-URINARY TRACT*

BY EUGENE A. VICKERY, M.D.,† PORTSMOUTH, AND HARRY O. CHESLEY, M.D.,† DOVER

IN presenting this paper, and reporting our brief series of seventeen cases, we realize that we have not a wealth of material, but in view of its newness, we thought it might be of interest to touch briefly on a few of the more important aspects opened up to the profession by the introduction, a little over a year ago, of the new opaque medium uro-selectan, now known as iopax.

After some pioneer work done by Rowntree and others, at the Mayo Clinic, as far back as 1923, further progress was made by Professor Binz and Dr. Raeth while working on the medical service of Professor Lichtwitz at Hamburg-Altoona, Germany. Their product, not proving wholly suitable because of its high toxicity, was further perfected by Swick of New York, in conjunction with the originators, the latter part of the work being done at the Clinic of von Lichtenberg in Berlin. It is interesting to note that the discovery was accidental, in that the kidney was outlined while the investigators were making a study of cholecystography.

It is unnecessary to enter deeply into the chemical composition of iopax, but suffice it to say, that it is an organic iodine-pyridine combination, and that it contains about 42% iodine. It is neutral, soluble in water up to about 50%, is extremely stable, can be sterilized, is of low toxicity, and can therefore be safely introduced into the blood stream in comparatively large amounts.

It is prepared as follows:

For a man or woman of average weight, the usual dose is thirty grams dissolved in 110 c.c. of double distilled sterile water, filtered, and sterilized for twenty minutes in the autoclave or water bath; the dose for children of course being proportionately smaller. After cooling to body heat, the injection is then made into the median basilic vein, in exactly the same manner as with salvarsan. It should be injected slowly with an interval of two or three minutes between the first and second halves of the solution. It may be injected by means of two fifty c.c. syringes, or by means of gravity from a salvarsan apparatus. In our later cases, the latter method has proved to be more satisfactory, because of the fewer manipulations, which in one or two instances disturbed the needle enough to get some of the solution into the soft tissues.

It may be stated here that another intravenous agent has recently been put on the market of somewhat different chemical composition, called skiodan containing 52% organic iodine and possessing the following advantages:

It requires a lesser amount, it may be introduced rapidly, it may be made up in bulk, sterilized, and kept indefinitely in dark bottles, and is non-irritating when used in retrograde pyelography. It is probable that further improvements may be expected in the future, the ultimate goal being some agent that can be administered orally, similar to the Graham test.

Regarding reactions: In our series of about seventeen cases, only one showed any disturbance and that one was mild. Patients usually complain of a flushed face, thirst, and perhaps some slight dizziness, which passes off in a few minutes. The pulse rate and blood pressure may be somewhat elevated. In one other case, the patient complained of some pain over the course of the vein as far as the shoulder. In the hands

*Read at the annual meeting of the New Hampshire Medical Society, Manchester, May 20, 1931. Lantern slides illustrated this address.

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of others reporting larger series of cases, symptoms of somewhat more severity have been reported.

During the year in which iopax has been in general use in this country, it has been received with varying degrees of enthusiasm by those who have used it, some observers saying that it saves cystoscopy in 75% of uretero-renal cases studied. Others say that it should never be depended upon without retrograde pyelography. I think a middle ground may be taken, as in our series some 50% of the diagnoses were made with the intravenous method alone. I have come to the conclusion that, in a study of the urinary tract above the bladder, all cystoscopies should be preceded by the intravenous method, and that in a very considerable percentage of cases, patients will be spared the ordeal of a cystoscopy.

Then there are the cases where cystoscopy is contraindicated; such as in inflammatory conditions of the bladder, tuberculous or otherwise: those cases where it is mechanically impossible to use a cystoscope, either because of an impassable urethral stricture, a large prostate, or the impossibility of passing a ureteral catheter into the ureteral orifice, as may be the case in the presence of extensive malignant disease of the bladder, obstruction of the ureteral orifice by stricture or stone, or even simple mechanical difficulty.

In cases of children, the intravenous method has already proved to be a most valuable diagnostic procedure, and Hyman of New York states that in a series of twenty-two children reliable diagnostic data were obtained in most instances by intravenous urography alone, thus obviating the necessity of cystoscopy under anesthesia, which does not always prove satisfactory.

It may be further pointed out that with the intravenous method we have in most cases a very satisfactory pyelogram of both kidneys, thus giving us valuable comparative data, which, in the case of retrograde pyelography could only be secured by bilateral injection, which most urologists agree is open to criticism. It also serves as a decidedly valuable visual functional test. The time of the appearance and disappearance of the pelvic shadow is as valuable as the phenolsulphonephthalein test, without the variations produced by trauma, or irritation of the catheter in the ureter and pelvis of the kidney.

Moreover, some data of kidney function as a whole can be obtained by taking the specific gravity of the urine at intervals, as iopax raises the specific gravity to 1.045 to 1.050. It is obvious that the time interval between administration and the highest specific gravity gives us at least some information regarding the eliminating function of the kidneys taken as a whole, which in the normal kidney is about one hour after administration. Chemically, we may also secure some data quantitatively, as it is readily recovered from the urine by the addition of hydrochloric acid which throws iopax down as a white precipitate.

It seems to be the general opinion of those observers who have used iopax, that it is more satisfactory in cases of stasis due to obstruction, and presenting varying degrees of hydronephrosis. A stricture, kink, or stone prevents the escape of the urine from the involved kidney, giving a higher degree of concentration, and therefore a clearer shadow.

As for contraindication, it is obvious that it will not prove satisfactory in cases of marked impairment of kidney function, due either to destruction of tissue, infection, or in advanced nephritis. Lichtenberg states that in pyonephrosis or infected and congested kidneys it is possible that no shadow whatsoever may be cast, no matter how long the interval after administration.

In comparing the relative merits of the intravenous and retrograde methods, it is at once apparent that the intravenous method does not cast so clear cut a shadow, and that it may be somewhat lacking in detail, but it seems reasonable to believe that with increasing experience in interpretation, this may not be so important.

There will be, no doubt, many cases in which intravenous urography will not prove satisfactory, some of which have been mentioned above; and there will be many puzzling cases, in which both methods may be employed to advantage. I do not wish to be understood as suggesting in any way, that the intravenous method will supplant cystoscopy and retrograde urography, but I do think that with increasing use, and more experience in interpretation, it will prove of ever-increasing value.

It seems to me that intravenous urography properly lies in the domain of the urologist and roentgenologist, and in many hospitals, cases are only accepted for examination by the x-ray department, when referred by the department of urology. Nevertheless, I can conceive of occasions in the smaller cities lacking a urologist, but having a competent roentgenologist, where the intravenous method would be of great value. Moreover, its painlessness and cost factor must be taken into consideration.

To summarize: It seems clear that it will be generally useful in those cases where retrograde urography is contraindicated or impossible. It will be particularly useful in children. It will render cystoscopy unnecessary in a very appreciable number of selected cases. It will provide valuable comparative data regarding the two kidneys. Its routine use will bring to light many unsuspected anomalies. It will often demonstrate a good or poor kidney on the opposite side to the kidney presenting symptoms. It adds

one more quite satisfactory functional test to those we already have, and it will give us new information regarding the dynamics of the genito-urinary tract, undisturbed by instrumentation.

REFERENCES

Oxford Surgery.

Kretschmer, Herman L.: Surg. Gynec. Obst. 51: 404 (Sept.) 1930.

Hyman, Abraham: Surg. Gynec. Obst. 51: 409 (Sept.) 1930.

Clinic of Dr. Edwin Beer, Mt. Sinai Hospital. Surgical Clinics of North America, June, 1930, p. 441.

Bumpus, Herman C., Jr.: Intravenous urography. Internat. M. Digest, 18: 95 (Feb.) 1931.

Braasch, William F.: Intravenous urography. Am. J. Roentgenol. 25: 196 (Feb.) 1931.

MISCELLANY

PRAY AND BURNHAM PRIZES FOR 1932

Portsmouth, N. H.,
January 1, 1932.

In accordance with the terms of the bequests of Drs. Thomas J. W. Pray and Hosea B. Burnham, the New Hampshire Medical Society, through the Trustees, hereby offers to the members of said society the sum of one hundred and fifty dollars in prizes. Of the aforesaid amount, one hundred dollars is to be taken from the Pray fund for the best, and fifty dollars from the Burnham fund for the second best "original essay upon some medical topic". The term "medical" is here used in its broadest sense to include any branch of our profession.

Essays must be in the hands of the Secretary of the Trustees on or before May 1, 1932. Each essay must bear some signature, and be accompanied by an envelope marked by the same signature and containing the name of the writer. This envelope is not to be opened unless the essay gains a prize. The names of the successful writers will be announced at the Annual Meeting and the prizes will then be awarded; and if the Trustees so direct, the papers shall be read before the Society and published in the Annual Report.

The essays are to be legibly written or printed with a typewriter and must not be less than 4,000 words, and not more than 10,000 words in length.

In deciding upon the merits of the essays submitted, the Trustees will take into consideration primarily: Originality, comprehensiveness, and the practicability and utility of the opinions advanced; secondly, literary character.

If none of the competing essays be deemed sufficiently meritorious by the Trustees, the prizes will not be awarded.

Unappropriated essays will be returned to their authors on application to the Secretary.

ALPHA H. HARRIMAN,
IRA J. PROUTY,
THOMAS W. LUCE,
Secretary and Treasurer,
Trustees.

Since the Pray prize was instituted in 1891 it has been awarded fifteen times.

1. In 1897, to Edward O. Otis, M.D., of Boston, for an essay on the "Causes and Conditions of Pulmonary Tuberculosis and How to Avoid Them."

2. In 1900, to Howard N. Kingsford, M.D., of Hanover, for an essay on "Something about Infectious and Contagious Diseases."

3. In 1901, to Albert E. Brownrigg, M.D., of the State Hospital for the Insane, for an essay on "The Clinical Significance of The Cheyne-Stokes Respiration."

4. In 1904, to Frederick L. Hils, M.D., of the State Hospital for the Insane, for an essay on "The Sanatorium for Incipient Pulmonary Tuberculosis: its Aims, Methods and Results."

5. In 1906, to H. T. Fontaine, M.D., of Pembroke, for an essay on "Home Treatment of Pulmonary Tuberculosis."

6. In 1909, to George S. Graham, M.D., of Hanover, for an essay on "Primary Carcinoma of the Appendix, with Report of a Case."

7. In 1910, to George S. Foster, M.D., of Manchester, for an essay on "Preventive Medicine and Its Relation to Foreign Immigration."

8. In 1914, to William Norwood Souter, M.D., of Portsmouth, for an essay on "Ophthalmometry, with Special Regard to Measurement of Lenticular Astigmia."

9. In 1917, to E. T. Drake, M.D., of Franklin, for an essay on "Conservative Classical Caesarean Section, with Report of Cases."

10. In 1919, to John M. Wise, M.D., of Glencliff, for an essay on "Principles Involved in the Control of Tuberculosis."

11. In 1920, to Burt W. Carr, M.D., of Pittsfield, for an essay on "Methods of Physical Restoration in Army Hospitals and their Application to Civil Life."

12. In 1925, to John Pollard Bowler, M.D., of Hanover. Subject of essay, "The Management of Obstructive Jaundice as a Factor Affecting Surgical Risk."

13. In 1926, to Albert E. Brownrigg, M.D., of Nashua. Subject, "Personality Study of One Hundred Juvenile Delinquents."

14. In 1928, to Robert B. Kerr, M.D., Manchester. Subject, "Childhood Tuberculosis and its 'Relations to the Campaign for the Prevention of the Disease.'"

15. In 1930, to Edward O. Otis, M.D., of Exeter. Subject, "The Prevention of Disease."

A COMPLIMENTARY DINNER TO DR. PETIT OF NASHUA, N. H.

A complimentary reception and dinner was given in Nashua, January 7, in honor of Dr. Alphonse Wilfred Petit, who recently completed his fiftieth year of active practice in that city.

Among the speakers were Mayor Sullivan of Nashua; Dr. F. E. Kittredge, representing the local mem-

bers of the medical profession, who took a leading part in the celebration; Judge Henri A. Burque of the Superior Court; Dr. Joseph N. Carriere, Mayor of Fitchburg, Mass., and others.

Dr. Petit received his medical degree from Victoria University, Montreal, in 1877, coming to Nashua in December, 1881. Interested in all movements for the welfare of his adopted city, he has been particularly identified with the inception and growth of St. Joseph's Hospital.

Of courtly mien and distinguished presence, a thorough student and keen clinician, Dr. Petit is, as he ever has been, an ornament and honor to his chosen profession.

H. O. S.

OBITUARY

Dr. George Winsor Hatch died at his home in Wilton, N. H., January 10, 1932.

Born in the neighboring town of Lyndeboro in 1855, graduate of the Dartmouth Medical School in 1880, he had been in active practice in Wilton for over fifty-two years.

On the completion of his fiftieth year of service, in December, 1929, the people of the town tendered him a reception remarkable alike in point of attendance and expressions of good will.

In May, 1930, the New Hampshire Medical Society presented to him a gold medal in recognition of fifty years of membership.

The typical family physician, Dr. Hatch possessed in an unusual degree the love and esteem of his patients and associates.

DEATHS

Jesse Sumner Bragg, Manchester, died January 1, 1932.

George Rosario Cusson, Berlin, died January 4, 1932.

George Winsor Hatch, Wilton, died January 10, 1932.

Charles Sleeper Gilman, Lakeport, died January 26, 1932.

WITHDRAWALS

Withdrawal, transfer to New York Medical Society, Jerome P. Webster, New York City.

Withdrawal, Maurice G. Wiley, Laconia.

THE PREVENTION OF THE INTRODUCTION OF DISEASES FROM ABROAD

In a report recently made public, Surgeon General H. S. Cumming of the Public Health Service pointed out that at the beginning of the past fiscal year cholera was present in epidemic form in several islands of the Philippine Archipelago. There was a minor extension to the city of Manila, some 50 cases occurring there. It is not likely that this epidemic, however, followed any recent importation of the infection, as past history shows that cholera recurs in epidemic form in these islands every four or five years.

During the past fiscal year no instance occurred of the importation from abroad of any quarantinable disease into the United States. Several cases of quarantinable diseases reached our quarantine stations and were detained.

Health conditions during the year, as regards the possible presence of yellow fever near certain ports of South America on the Caribbean coast, and on the east coast from the Amazon River to Rio de Janeiro, were such as to warrant the issuance of instructions to quarantine officers at stations located on the Gulf and Atlantic coast south of the southern boundary of Maryland to be particularly on the alert in making the quarantine inspection of vessels which have called at the smaller ports along the east and Caribbean coasts of South America. It is understood that the Brazilian authorities are conducting an effective antimosquito campaign in the principal seaports and that danger of maritime spread is decreased accordingly. Information received from reliable unofficial sources indicates the occurrence of suspected cases of yellow fever in the interior of Colombia, but these reports lack official confirmation.

Of international interest is the problem of the control of psittacosis. This subject will form one of the major topics for discussion at the forthcoming meeting of the Permanent Committee of the International Office of Public Hygiene in Paris in October, 1932. The regulations of the United States for the control of this disease prescribed by an executive order issued by the President on January 24, 1931, restricting, for the time being, the introduction of parrots into the United States, have been modified during the past year to permit the importation of commercial shipments of these birds under approved sanitary restrictions.

During the past year a change has been made in the application of the measures designed to prevent the spread of typhus fever at ports of embarkation. This step was taken in view of the better organization of sanitary services and improvement in sanitary conditions now obtaining throughout Europe. Where formerly the application of the measures designed to prevent the spread of typhus fever was based on broad geographical areas, now the application is contingent upon the actual endemic or epidemic prevalence of typhus fever in such ports, places or areas from which persons destined for the United States have originated or embarked.

Special studies of the fumigation of ships as a plague preventive measure which were begun last year at the New York quarantine station were continued during the past fiscal year with marked progress.—*United States Public Health Service.*

VERMONT STATE MEDICAL SOCIETY

OSTEOMYELITIS*

BY FREDERIC J. COTTON M.D.†

PROBABLY, sometimes, lymph-borne. In the vast majority of cases blood-borne. This applies to the spontaneous cases. Compound fractures fall in a different class, considered, in this talk, only incidentally.

Typically, we are dealing with a blood-borne infection, usually one thinks of tonsillar origin, but sometimes very certainly originating in boils or a carbuncle.

The infection is nearly always staphylococcus aureus—very rarely albus,—almost never streptococcus, save in the compound fractures. There are, of course, rarities, like the typhoid cases, of which I have seen three or more (of the "Brodie's" type), in the old typhoid days.

The infection is, with rarest exceptions, *central* in the bone;—*medullary, not periosteal.* Most usually it is in the circulatory "dead end" of the shaft, next the epiphysis. This holds true, grossly, even in adult cases with consolidated epiphyses.

Many mistakes are made, often very disastrous, in assuming that one is dealing with a periosteal abscess. This periosteal abscess almost never happens except as a *complication* of a *central* bone process.

I am going to return presently to two very recent, rather unpleasant cases of that sort, in the hands of more than ordinarily good practitioners.

The onset of an osteomyelitis calamity may be amazingly sudden. A day of vague malaise, a sudden temperature of up to 104 degrees or more, semi-coma of a typhoid type,—no definite complaint of local pain.

The patient is commonly in the early "teens".

This is the book picture that we have all been taught. If it happens as above stated, no one would be justified in failing to recognize it, and to take care of it. Sadly, enough, as so often chances, the book picture is not a portrait!

Commonly, as I see them, the cases are mostly *subacute*, not *acute*, and the worst of them, —the ones that wreck most bone, are of the quieter type. Perhaps I can best illustrate by citing two very recent cases seen in consultation, not too early. One, a girl of ten, who had been ailing a fortnight, had had an abscess of the leg; opened; no better. I opened up an osteomyelitis from tibial epiphysis to tibial epiphysis, *after* there had been a spontaneous fracture of the tibia. Restorative operations to come later. The other, a lusty man in the early thirties. Supposed trauma—vague. Slight temperature— persistent pain, not severe. Operation by a trained young man who opened an abscess, and wanted to go further. Restrained by seniors. I saw the case four days, I think, after this. Found an obvious quiet osteomyelitis. Early x-rays were honestly negative.

Never forget that as Dr. Paul Butler, our expert radiologist, has heralded forth for years, *the x-ray is of no value* in *early* osteomyelitis. When I came into the party, I found the percussion test clearly positive, and had an x-ray taken that showed to me, very definitely, five inches of shaft involvement. The surgeon operated who had wanted to go the limit at the first operation; reported six inches of at least thoroughly infected medulla. The case has done amazingly well, as is to be expected with the early cases, early opened, and without necrosis so far as one can see. That is, unfortunately, not the rule. He is in luck! The cases one lets go with "medical" drainage have extensive necrosis, like the first case noted, as a rule. The late John B. Murphy was probably the first of us to see the point.

In case of doubt, *open! Open wide!* In some few years I have "gone in" on many cases. At the moment I cannot recall a case in which I failed to find medullary pus. Certainly in no case have I infected the medulla by exploration. I think the argument for delay, on the theory that such result may ensue is the sheerest nonsense. I am a professional conservative.

For example, in the hand, the tendon-sheaths, in the face of sepsis, must be sacrosanct. But in a leg or arm infection, the tissue best equipped to resist and limit infection, *except under pressure,* is the medulla.

As a rule, nearly nine and ninety times it is the site of the *original* trouble, if in the one case, one opens it up through an abscess, then, no harm is done.

I cannot overemphasize my disagreement with the theory of *temporizing* with osteomyelitis cases. Personally, I am ready to operate almost on suspicion, and without regret.

How should one make the diagnosis?

Given a few degrees of temperature; given a slightly raised white-count; given a moderate lameness; given a moderate pain; *localized,* more or less; given local heat, not great; given a trace of edema, local. Then *percuss!* The affected

*Read at the annual meeting of the Vermont State Medical Society, Rutland, Vermont, October, 1931.

†Cotton—Senior Surgeon-in-Chief, Boston City Hospital until July, 1931. For record and address of author see "This Week's Issue," page 244.

bone may be mapped out by careful percussion with a rather amazing accuracy.

Pain on percussion in such cases is not severe, but it is usually, although nearly always in the cases without toxic confusion (and often in them), amazingly definite.

What I really have to say to you is, in cases of doubtful osteomyelitis forget the white count, forget the temperature chart, forget the x-ray, percuss and drain.

How large must the drainage opening be? To the limit of pus, or a bit beyond.

How wide? In a femur or tibia a slot of 3/8″ wide suffices.

How secure drainage? By either Dakin treatment, or vaseline dressings. Vaseline dressings give less necrosis of bone edges, I think, and I prefer them, but in a case of rapid extension of the process, Dakin treatment is perhaps safer. In practice I use it, rarely.

When one has checked the acute process, what next? Nothing but infrequent vaseline dressings for weeks.

The next intervention is after the sequestra have separated pretty completely, and, if the whole diameter of the shaft is dead, one must wait longer, wait until a decent involucrum has formed.

I have little sympathy for the "ideal" operation, the theory of which is that removal of a necrosed shaft, at a time (5 weeks or 6, usually), when x-rays show the first beginning of the laying down of periosteal bone;—that such removal, with the consequent building up of bone by the inner sides of the collapsed periosteal tube will build a new shaft. This is a pretty idea; I have seen it done repeatedly, and have seen it work perfectly. Nothing could be prettier. I have seen various cases in which the shaft was reformed, all except maybe an inch of length; which leaves one in a bad position.

Also, there must be always a cone-shaped space left empty at either end of the collapsed periosteal tube, and one has seen persistent sinuses. I have done this operation, myself, but would rather pin my faith on endosteal repair, and postpone final intervention to from 8 to 10 weeks.

Given a decent involucrum all the length, one chisels away the front face of the new bone, removes the dead bone, and opens up all pockets.

Then, simplify the mechanics to favor the repair processes over which we have little, or no control.

We have involucrum, or remaining original bone, strong enough to hold the position and ample exposed bone surface already stimulated to even abnormal repair effort; so not much of a shaft is needed to start with. Be sure to cut away all unnecessary edges and flanges. Sometimes one cuts away (in total cases with only an involucrum to do the repair) as much as three-quarters of the circumference.

There is small danger of fracture, but oddly enough these fractures, if they do occur, do heal and without fresh necrosis. So one need not be too fearful. I would rather cut away a lot than have a pocket in bone and a resulting sinus for years.

Now, if one can reduce the field of the bone wound to an open wound in healthy bone, one can disinfect.

Ninety-six per cent. carbolic, left in 1½ minutes or alcohol freely with vaseline dressings and *neglect*, thereafter, for a week or more. Then a clean-up dressing and fresh vaseline.

The results are not quite 100 per cent. good, but with this routine, on the fourth and sixth Surgical Services of the Boston City Hospital, and in private practice, they have been amazingly satisfactory for years.

Often, long after the apparently complete healing of an osteomyelitis, sometimes up to ten years or more after, trouble of a queer sort appears: occasional soreness and lameness in the limb, ill-localized, like a muscle lameness, for which it is likely to be taken. There is no actual pain; a temperature of 99-99.5 or thereabouts may be found.

After a few days all seems well, but the attacks recur at intervals of from a few weeks to several months slowly becoming more troublesome.

The picture is not at all that of the superficial recurrent abscesses originating on the face of the bone or in the fibrous scar without bone connections, which are the familiar curse of so many "cured" osteomyelitis cases. These recurrences give a picture of frank local sepsis, troublesome, seldom serious. The cases of real recurrence of massive bone infection are rare, though they do occur. I can recall three.

The class now under consideration is not frankly septic. And now, one sees similar cases without a history of osteomyelitis with a similar story of recent recurrent lameness. Usually, one can get after a while a history of what might have been an abortive attack of osteomyelitis.

These two classes are of the "Brodie's abscess" class. Do not be misled by statements that Brodie's abscess does not occur in adults; most of mine have been in adults.

How shall we diagnose? Almost purely a matter of percussion for bone tenderness. Then, with mind made up already, one calls for a skiagraph by an expert operator, a "soft" tube, and stereo films.

Often the picture is amazingly hard to read, in view of what one finds later, but it suffices for confirmation.

The operation is simple enough, if one measures the film and limb. If abscess is found, then make a wide opening, disinfect, and after that my preference is for wax filling. Horsley's formula merchandised as LUKENS' bone wax. With this, patient may be "up and about".

Repair as in all these bone lesions, depends on a reasonable asepsis, nutrition enough to ensure granulation tissue, fibroblasts to cover and protect the osteoblasts at their work.

They do well almost without exception with this routine.

For some months we have been working on Baer's maggot technique. It has value, but I for one cannot say that we have had better results than with the established technique of the sixth surgical service.

The value of the maggots, in cleaning up infected ulcers, bedsores, etc., is very much worth while in those cases but does not belong here.

As to chronic cases, the same principles hold in gross: the widest possible opening, removal of all superfluous bone, with a rather radical conception as to what is superfluous, removal of all infected or infiltrated tissue, removal of sinus walls (gristly fibrous tissue, without repair power), disinfection, and protection with vaseline dressings.

Often it is wise to inject an alcoholic solution of methylene blue into all sinuses, before opening them. So one dyes all sinus walls and misses fewer pockets.

Cases there are which we cannot, at least do not, cure. They belong generally to three classes:—

Sinuses about the hip joint, leading to the pelvis, which are deep, tortuous, and cannot be exposed to a practical degree without undue risk to life or limb. One does something with these by resorting to x-rays taken after sodium iodide (or lipiodol, or Beck's paste) has been injected under mild pressure, to determine the gross facts, and methylene blue injection, on the table, to help in the detail of trimming; but, after all, not all of them heal.

Secondly, there are some cases of osteomyelitis of the lower end of the femur, draining through the popliteal space, or up under the quadriceps, in which no technique known to me will secure good results.

Dakin irrigations are useless, vaseline technique equally so, and the maggots, that avoid light, yet cannot be driven to work at these depths, or those presented by the pelvic class. Some of these cases we clean up by luck, and with a healthy patient.

The third class includes the inveterate ones with ivory bone.

As a type, let me cite a man of 68, with an osteomyelitis of the femur, of nearly forty years' duration. There had been joint involvement with a consequently stiff knee. There was a longstanding wound infection, with the stench of butyric acid bacilli. I operated, perhaps foolishly, and found ivory-hard, sclerosed bone, and "grease-packed" the space, as usual. Repair was almost nil. Presently, he sat down to weed his garden. Getting up, with the stiff knee, he cracked the shaft of the femur. There was not the least effort at repair. I was at my wits' end, when a sudden fatal anginal attack relieved me of responsibility.

To sum up—we can do little or less in the face of sclerosed bone, aged beyond repair. We can do little in cases with deep sinuses, that, owing to nerves, vessels and other structures, cannot be opened up widely. In other cases we can accomplish a great deal by early suspicion, early provisional diagnosis, early drainage, followed by "watchful waiting", by radical operation and disinfection, together with proper care.

In the chronic cases, the issue is usually that of being willing or unwilling to go ahead radically, to clean up, open up, disinfect, dress, and, after that, leave them alone a bit, and give nature a chance.

One word as to technique, and I am done. The key to success here is largely in preoperative study and in operative speed.

These cases, many of them, are in children, who stand shock and hemorrhage very poorly. The deaths, lamentably not a few, are, as I have seen them, from shock, hemorrhage, and long-continued disease. One cannot always avoid free bleeding. One can reduce the time spent in operating and that means *organized team work*.

Any operation, here indicated, that cannot be done in 20 or at most 30 minutes of actual operating time, becomes dangerous, and calls for reorganization of the team.

In closing let me say that results in early osteomyelitis are vastly better than they were, due to prompt surgery, both as to the number of deaths and to limb destruction, and the results in the subacute and chronic cases have been vastly changed in recent years.

My graduation thesis was on osteomyelitis, and, as I recall it, the treatment then was a benevolent gesture. We are doing better now, but not quite well enough.

MISCELLANY

VERMONT DEPARTMENT OF PUBLIC HEALTH

DECEMBER, 1931

Communicable Diseases have been reported to the Department of Public Health as follows: Chicken pox 332, diphtheria 2, measles 566, mumps 48, poliomyelitis 2, scarlet fever 49, smallpox 54, typhoid fever 1, undulant fever 3, whooping cough 156 and tuberculosis 18.

A total of 1,420 examinations were made in the Laboratory of Hygiene during the month, classified in the following manner:

Examinations	
For diphtheria bacilli	133
For Widal reaction of typhoid fever	25
For malarial parasites	0
For tubercle bacilli	210
For evidence of syphilis	435
For gonococci in pus	156
Of water, chemical and bacteriological	52
Of water, bacteriological	215
Of milk, market	98
Of milk, submitted for chemical only	8
Of milk, submitted for microscopical only	5
Of foods	10
Of drugs	0
For the courts, autopsies	0
For the courts, miscellaneous	10
Of animal heads for evidence of rabies	0
Miscellaneous	62
Autopsies to complete death returns	1

There were 37 new cases of gonorrhea reported to the Division of Communicable Diseases and 21 new cases of syphilis. One hundred and seventy-one Wassermann outfits and 194 gonorrheal outfits distributed.

The nurses of the After-care Poliomyelitis Division visited 131 patients and 9 doctors. One plaster cast was removed, one patient admitted to the Fenway Hospital, and two patients discharged from the Children's Hospital in Boston. Twenty-two pieces of apparatus were fitted, 44 orthopedic corrections made to shoes and 9 pieces of apparatus repaired. The vocational worker reports sales made during December amounting to $223.33.

The State Advisory Nurse of the Maternity and Infancy Division visited several towns assisting with Parent-Teacher meetings in the interests of this Division. Pre-school clinic work in counties conducting such work is very encouraging. An itinerant dentist visited the clinic centers and, in this way, a large number of children have been cared for as well as several whose throats were attended to in the hospitals.

THE WOMAN'S AUXILIARY TO THE AMERICAN MEDICAL ASSOCIATION

EXCERPTS FROM *Colorado Medicine*, *Oregon State Medical Journal* AND THE *Kentucky Medical Journal*

We are depending upon the support of the wives of the physicians throughout the country to augment our efforts in educating the public in preventive medicine, the health examination, and the proper direction of health legislation. They are capable of inspiring confidence where we may fail; they may convey messages to lay organizations which our ethics and humility, unfortunately, preclude. It is for our profession that they have organized and are working. Their value to our cause is unlimited; it will be largely in proportion to the aid and encouragement they receive at the hands of their physician husbands. It is known that a number of physicians are unsympathetic with the Auxiliary and its work. May they allow themselves to recognize the potentialities of this organization and endeavor better to inform themselves of its capabilities.

It is hoped that each issue of *Colorado Medicine* will be placed in the hands of the wives of our Society members before each month has passed. There is material in the Auxiliary's section which will be of interest; there will be reading matter in the other sections which will further enhance their understanding of the work of the profession.

The following extract is from the resolutions passed by the House of Delegates, Oregon State Medical Society, October 24, 1931:

Whereas, the Woman's Auxiliary has made notable progress during the past year in organizing the wives of physicians and interesting them in the dissemination of sound health information to the lay public, particularly in their various local clubs; and

Whereas, the aid of the Auxiliary is indispensable in the promulgation of such knowledge and assisting the medical profession in the work of educating lay people to the great truths of scientific medicine;

Therefore, be it resolved, that the House of Delegates of the Oregon State Medical Society expresses to the Woman's Auxiliary its deep appreciation of their invaluable services and pledges its wholehearted support to their future program.

The development of the Woman's Auxiliary to the Kentucky State Medical Association has been slow but sure. Each year a few more of the wives, mothers, sisters, widows and daughters of the physicians of the state have become seriously interested in the possibilities of its development and their joint contributions have rendered it more and more effective. Not only in Kentucky but throughout the United States no other organization has contributed more to public health education, including the value of scientific medical service, than the women who are allied with the medical profession. A natural result of this development in such an organization has been for it to seek increasing avenues, both of self-improvement for its members and of expression for its plans, policies and methods, so that they can be of the greatest benefit to the public and to the profession.

The State Medical Journals have given as generously of their space as has been found possible. In Kentucky we have been able to give rather more than the average amount of space to the Auxiliary through the generosity of one of our members who has paid for the pages used by it.

The Auxiliary, with the approval of the House of Delegates, at the Lexington meeting, felt that the time had come for recognizing the efficiency and dignity of our Woman's Auxiliary by permitting them to provide themselves with a vehicle for such expression and, to this end, with this issue we begin the publication of a quarterly supplement, which will be under the full editorial control, business management and financial support of the Auxiliary.

MEDICAL PROGRESS

PROGRESS IN NEUROLOGY

General Physiology

Spinal Fluid

BY ABRAHAM MYERSON, M.D.*

THE question whether there is a true cerebrospinal fluid circulation has been discussed by several authors during 1930. The reviewer selects as typical of one point of view the studies by Ernest Sachs and his co-workers[1]. They do not believe there is a true circulation, that substances in the cerebrospinal fluid are passed from one part to the other by gravity, influenced to a large extent by the position of the head and by diffusion. They do not believe that the arteries which run in the subarachnoid space and pulsate there bring about a circulation in the movement of the cerebrospinal fluid, this being a theory which has been quite favorably sponsored in the past. The authors believe that repeated lumbar puncture in the case of meningitis spreads the infection by bringing about an artificial circulation. They are in favor of cisternal puncture because this is better for meningeal drainage and they recommend this and ventricular puncture for the treatment of meningitis. Whatever lumbar procedures are carried out should be only for diagnostic purposes and only a small amount of fluid should be withdrawn.

In considering this one must remember that the ancient medical adage *ubi pus ibi evacua* is a good working basis. Removing infected spinal fluid by whatever method would on the whole seem to do more good than harm.

The clinical significance of the sugar in the spinal fluid as influenced by meningitis receives further confirmation by the work of Scharawsky and Mandelboim[2]. The most important recent advance in spinal fluid examination is the demonstration that, with an active infection of the cerebrospinal fluid spaces, the sugar content of the spinal fluid becomes diminished. These authors state, however, that there is an increase in epilepsy and also some cases of brain tumor, which is not in accord with most American experience.

Winkelman and Fay[3] lay the anatomic structure for their particular approach to brain trauma and epilepsy by their consideration of the anatomy and physiology of the pacchionian granulations. They believe that the pacchionian body is the adult development of the arachnoid villus and that the physiologic importance of the granulation is the same as that of the villus, namely, to play a rôle in the absorption and drainage of spinal fluid. It is evident, they say, that if the drainage of cerebrospinal fluid is dependent upon these structures, and impairment of function can be demonstrated as being due to their pathologic involvement, several obscure clinical manifestations may find a possible explanation. They then go on to relate these bodies from the pathologic point of view with epilepsy, brain atrophy following trauma and certain obscure clinical syndromes.

Hassin[4] concludes that the pacchionian bodies,—lacunae, villi, venous dural sinuses—are not for the purpose of absorption of the cerebrospinal fluid. The perineural pathways of the roots in the spinal cord and of the basilar nerves in the brain are evidently of paramount importance. It is probable that they are the main, if not the sole modes of escape of the cerebrospinal fluid from both the brain and the spinal cord.

It is thus obvious that the question of the absorption of the spinal fluid is not yet settled.

CHEMISTRY OF THE BLOOD FROM THE CAROTID ARTERY AND THE JUGULAR VEIN

In 1927 Myerson and Halloran[5] introduced the puncture of the internal jugular vein as a means of studying the chemistry of the brain. In this paper they report a series of over fifty cases studied. The general technique followed was simultaneous puncture of the carotid artery and the internal jugular vein thus obtaining the blood going to and from the brain. Similar punctures were made of the brachial artery and the basilic vein so as to get a comparison between the biochemical activity of the brain and the arm. They point out that the brain uses up more sugar per 100 cc. of blood than does the arm, that one can measure the quantitative use of oxygen by the brain and the production of carbon dioxide. In most of their cases more oxygen disappeared into the brain tissues than into the arm tissues. In other words, the brain is a highly active organ in the biochemical sense. They point out that the procedure is entirely safe and it offers a scientific way of studying brain activity. Using the carotid artery content as indicating what the brain receives, an examination of the spinal fluid and of the con-

*Myerson—Professor of Neurology, Tufts College Medical School. For record and address of author see "This Week's Issue," page 244.

tent of the internal jugular vein gives all the information that is at present possible to receive concerning what the brain does in a chemical way.

Lennox[6] who has used the internal jugular puncture method corroborates the statement that it is a perfectly safe method of approach. He states that the gaseous content from the femoral vein was found to be the same as that of the blood of the basilic vein. In sharp contrast the oxygen content of the blood from the internal jugular vein was more reduced and blood from the external jugular less reduced than that from the basilic vein. These statements are true for average values. In his experiments more sugar disappeared from the blood in its passage through the brain than in its passage through the arm. He believes that in the metabolism of the human brain carbohydrates are unusually important.

SLEEP

The problem of sleep still absorbs the attention of the European workers. One of the most distinguished of these, the discoverer of encephalitis, C. von Economo[7] places the anatomic center for the regulation of sleep in and about the infundibular region, namely, where the other vegetative centers are located. He believes that this center is set into activity by fatigue substances which circulate in small amounts to act specifically on it. As a result the sleep center inhibits the action of the brain and thalamus, thus avoiding extreme fatigue or intoxication by fatigue products. von Economo thus falls in line with the theories that have effective importance in the consideration of the important problem of sleep, namely, that sleep is a means of avoiding extreme fatigue rather than a true fatigue reaction and that extreme fatigue is an injury to sleep rather than productive of it.

In the *Archives of Neurology and Psychiatry*[8] appears an abstract made by W. J. Bernis of Rochester, New York, of the transactions of the German Neurological Society of 1928 and he refers especially to the work on sleep. Sleep and wakefulness are considered to be regulated by the vegetative nervous system. The regulative mechanisms are essentially in the brain stem, and there is a hypothetical sleep center, the exact location of which is not known but is assumed to be subcortical. The normal periodic changes of wakefulness and sleep are vegetative functions of the entire organism, which for their regulation, like other vegetative functions, have a representation in the central nervous system. Many experiments are recorded which indicate the vegetative and organic nature of sleep.

Pick[9] divides the hypnotics which bring about sleep into two groups, those affecting the cerebrum and those affecting the brain stem:

Hypnotics Affecting the Cerebrum	*Hypnotics Affecting the Brain Stem*
Alcohol	Barbital
Amylenhydrate	Phenobarbital
Chloralose	Phenylethylhydantoin
Paraldehyde	Chloretone
Chloral hydrate	Valerian
Bromide salts	Magnesium salts
Morphine	

Thus sleep remedies are divisible into two types depending upon their point of attack and their sleep-producing qualities. It appears therefore that a consideration of the type of insomnia is essential and that the drugs used must be carefully selected. It also appears that drugs that induce sleep and influence pain also act on fever. Most hypnotics and narcotics calm the irritated heat centers in the corpus striatum and hypothalamus. Consequently it is not surprising that antipyretics, the point of attack of which is certainly near the sleep-regulating center, can be substituted for hypnotics or considerably strengthened by them.

This entire article deserves careful study and cannot adequately be abstracted. The papers in question study heat regulation, fever, regulation of water output, pain, etc.

PERIPHERAL NERVES AND NEURITIS

An important therapeutic paper on the regeneration of peripheral nerves is here cited[10]. Piontkowsky experiments on guinea pigs in the following manner. The sciatic nerves of both legs were cut under local anesthesia. The wounds were then sutured. The severed right sciatic was untreated. The severed left was given galvanism after twenty-four hours and regularly thereafter. The following are the results: (1) In all cases movement returned more quickly in the treated leg than the untreated. (2) In three weeks the regeneration of the treated nerves was about equal microscopically to the picture of the untreated nerve of two months' duration. (3) After about forty-three treatments and in two months the treated nerve was completely regenerated whereas in this stage the untreated nerve was still far from complete restoration. (4) Furthermore, trophic ulcers were less frequent, appeared later, were never quite so extensive and healed earlier than the ulcers which appeared in the untreated leg. (5) Contractures of the muscles did not appear in the treated leg but did appear conspicuously in the untreated leg. The author on the basis of the literature which he has reviewed quite carefully and of his own experiments advocates the early use of galvanism to all injuries of the peripheral nerves.

In the year 1930 there appeared the Jamaica ginger epidemic of peripheral neuritis. Many clinical studies were done, two in New England[11,12]. The most important work was done by the public health officials[13]. They made a thorough study of the Jamaica ginger cases. The ac-

tive toxic substance which they believe causes the paralysis was tri-ortho cresyl phosphate which was used to doctor the Jamaica ginger. They believe that one drink, as little as an ounce of the ginger, produces essentially the same results, except for some slight difference in degree, as was obtained with much heavier drinking. The cases on the whole did very poorly. Regeneration of nerves took place very slowly and very incompletely, most of the patients being left badly crippled.

MYELITIS, ENCEPHALITIS, ETC.

It has appeared in previous years that neuritis, neuromyelitis, myeloradiculitis, and encephalitis are not sharply separated clinical entities but merge one with the other so that the same infection may give rise to a variety of clinical pictures. Strauss and Rabiner[14] link up radiculitis or neuromyelitis and myelitis with the term "myeloradiculitis". Several authors link up herpes zoster with myelitis, Landry's paralysis and encephalitis. Thus, Lhermitte and Vermes[15] believe that herpes zoster and myelitis are clinically quite closely connected. Schuback[16] in an extensive series of studies comes to the conclusion on the grounds of his histopathologic work that Landry's paralysis and herpes zoster are linked together by a similar process, which constitutes an infiltrative polyneuritis. In the ordinary herpes zoster the virus is limited in its effects to the posterior root ganglia but under certain circumstances not yet understood, it spreads to motor roots and becomes overwhelming as in Landry's paralysis. Gay and Holden[17] believe that many forms of encephalitis are due to a neuroscopic strain of herpes virus. Their experimental studies on animals indicate to them that the herpetic virus causes brain changes of the encephalitic type.

A good many papers have appeared on infective encephalomyelitis which indicate that there is a wide range of infections that may involve the nervous system in a disseminated way[18]. These epidemic cases are pathologically centered in the white matter. The pathology is a cellular infiltration with involvement of the meninges of the brain and cord as well as glial proliferation in the white matter. Infectious diseases involving the nervous system either seem to be more frequent or else they are being recognized with greater acuteness. It is now becoming apparent that there are cases of encephalitis which merge into what seems to be a form of acute multiple sclerosis, thus strengthening the opinion that multiple sclerosis itself is an infectious disease.

Considerable alarm has been felt in Europe and to a large extent in the United States over the occurrence of encephalitis following vaccination[19]. Just what is responsible for these cases is as yet unsettled. It has been thought that passage of the virus through the rabbit is responsible for encephalitis but E. Paschen[20] cites cases where encephalitis has followed the use of vaccine which has never been in contact with rabbits. Several of the authors report the favorable effect of intravenous injection of immune serum in these cases of encephalitis which follow vaccination.

EPIDEMIC ENCEPHALITIS

von Economo, the discoverer of epidemic encephalitis, has written a monograph which became accessible in 1930 on encephalitis lethargica, its sequelae and treatment. He stresses the utilization of the lumbar puncture method so long as the fluid pressure remains above normal. He also uses iodin in large doses. He prefers Pregl's iodin solution which is a solution of the sodium salt of hydriodic acid and iodic acid with metallic iodin. He favors the use of vaccine to produce fever. Riley's[21] treatment coincides closely with that of von Economo. He believes, however, in the utilization of dehydrating measures, the best and most satisfactory being the daily injections of 250 cc. of a 25% solution of dextrose, given intravenously. By reducing the amount of spinal fluid and other tissue fluids, the pressure on the delicate cellular elements is kept at normal. He believes that the spinal fluid pressure should be kept at about 50 to 60 mm. of water pressure. He also utilizes salicylates, preferably by the rectal route in maximum dosage. He gives as much as 100 to 200 grains at a dose.

Chronic encephalitis and the residuals of encephalitis have received considerable attention. Stewart and Evans[22] believe that the Pfeiffer bacillus is responsible for chronic encephalitis and they claim that they have isolated from the nasopharyngeal cultures of chronic patients in one hundred per cent. of the cases. They have also produced a soluble antigen which they have used for the treatment of the Parkinsonian syndrome of chronic encephalitis.

A very useful paper is that of Zinnemann[23]. He gives a complete account of methods of treatment of encephalitic Parkinsonism, etc. He describes such unusual treatments as nicotine, curare, calcium, arsenic, oxygen therapy, ultraviolet, and harmin. He also takes up the question of operative and orthopedic treatment. He reaches the conclusion, which might be expected, that there is no satisfactory treatment. (Parenthetically it may be stated that where many and devious remedies are suggested for the treatment of any disease, it is quite likely that none of them is of any great value since a successful remedy soon establishes itself as predominant in the field.) He believes that the only ameliorative approach of any importance is by the use of the alkaloids of the atropin group, especially hyoscin and stramonium. Like von Economo

and Riley he uses iodin in the early stages of the infection. This article should be read for a complete account of the literature.

That the treatment of the chronic Parkinsonian syndrome is unsatisfactory is exemplified by the three further papers cited [24, 25, 26] which give contradictory accounts of their results with stramonium. The reviewer believes that it can be safely said that whatever ameliorating effects stramonium has rapidly wear off and have no substantial effect either in helping or injuring the patient.

The question of traumatic Parkinson's disease is very important especially in this state where the question of the relationship of a trauma to paralysis agitans has been brought up time and again. The Paris Neurological Society[27] on the whole is extremely skeptical of true traumatic Parkinson's disease.

Kurt Mozer[28] in an elaborate paper which deals with the relation of trauma to a diverse number of conditions also comes to the conclusion that trauma can be said to have almost no effect in Parkinson's disease. Certainly injury to a limb or to the trunk is excluded from such relationship. Injury to the head can only be related as an accelerating factor when the trauma has been associated with the signs of organic brain injury.

Treatment of syringomyelia which has in the past been considered an entirely hopeless disorder, is now conducted along surgical and roentgentherapy lines. An important paper on the treatment of syringomyelia by roentgentherapy is that of Delherm and Morel-Kahn[29]. They state that in their personal cases the favorable percentage was about 60% which is somewhat lower than most previous reports of about 80%. They noted that failures were more frequent in the cases dating back more than five years in which roentgentherapy achieved some success. They conclude from this that by the use of roentgentherapy a considerable improvement in the prognosis of a severe affection like syringomyelia can be expected but only on condition that the x-rays be applied early, in young subjects, and that the treatment be continued for a long time in a much larger area than that clinically involved. It is very important to protect from radiation those regions of the skin which may have to be treated later. It is highly important in the technique to make sure that the treated zone considerably exceeds the site of the localization indicated by the nervous symptoms. They believe in moderate dosages, a series of 1200 to 1600 R per field. Each seance consists of a dose of 400 R, and they give two seances each week. They use the cross-fire method, treating alternately from the right and left side of the spine in the course of each series and directing the normal ray obliquely toward the spinal canal.

BRAIN TRAUMA

Temple Fay[30] takes up for consideration a group of cases where without organic signs of central nervous system injury, there is definite complaint of dullness, depression, vertigo, nervousness with headache and a definite change in personality. Most of these patients are diagnosed as exhibiting traumatic neurosis, hysteria, neurasthenia and even malingering. By use of the encephalogram, pathologic changes are noted usually in the frontal and parietal lobes and usually in the form of cerebral atrophy which is out of all proportion to the cerebral location of the injury. He believes that there is injury to the pacchionian bodies and that the acute reactive changes are due to the presence of red blood cells. He advises that in case of acute brain injury, especially where bloody spinal fluid is present, drainage of the fluid should be done allowing all the fluid that can be drained to be removed. This drainage should be repeated from one to three times daily depending upon the amount of blood. The removal of all the red blood cells possible up to the fifth or seventh day is important, thus involving a red blood cell count of the spinal fluid. He also believes that in an acute brain injury from 40 to 60 cc. or 50% dextrose should be given intravenously. The general principles underlying the treatment are removal of the red cells and dehydration. He believes in maintaining the patients under a restricted fluid intake for approximately three months following a severe head injury especially if bloody fluid is obtained by lumbar puncture. The intake is gradually increased from 500 cc. to 1000 cc. but not more than 1000 cc. is allowed until after the third month.

GENERAL PARESIS

Malarial treatment still holds the field as the prevailing method of treating general paresis. Two other forms of treatment have recently become conspicuous. One is the diathermic treatment by means of which fever is brought about through the use of the electric current. Since the articles appearing in 1930 have been followed by more important papers in 1931, I shall review the entire subject in a 1931 paper.

The second is the sulphur treatment of general paresis. Noel G. Harris[31] using sulphur and olive oil produces a high degree of fever. This is following the method of Schroeder who used 1% suspension in olive oil. Harris' paper is not at all convincing. W. G. Patterson and S. R. L. Switzer[32] who follow the method state that their results both clinically and serologically are comparative failures.

Elizabeth McDermott[33] concludes that the Kahn presumptive method, the details of which she gives, is decidedly more sensitive than the regular test for spinal fluids. Due to its increased sensitiveness, it strengthens the diagnostic significance of the weak or borderline reactions of the regular test. Negative presumptive reactions are obviously stronger indicators of the absence of syphilis than similar reactions with the regular test.

MULTIPLE SCLEROSIS

The most important development in multiple sclerosis in 1930 is contained in the series of papers by Sir James Purves-Stewart[34] and Kathleen Chevassut[35] on the vaccine treatment of disseminated sclerosis. Working on Purves-Stewart's cases, Chevassut discovered an ultramicroscopic virus cultivated in the cerebrospinal fluid. The organism is described as a sphere with a granule attached to it which is about 1/10,000 of the diameter of a blood corpuscle. The authors also state that they were able to obtain an antibody by the use of the virus. J. A. Braxton Hicks, F. D. M. Hocking and Sir James Purves-Stewart[36] have devised a method for estimating the strength of the suspension of the virus isolated from disseminated sclerosis. They found that this virus is readily killed with carbolsaline, and suspensions of it can be used as experimental vaccines, and administered intravenously without harm. There is some evidence of inhibitory substances being formed in the sera of patients after the administration of a virus suspension, which was not found in the case of monkeys. Patients who have disseminated sclerosis or who have had vaccines administered show no complement-fixation phenomena. This was also true with the sera of virus injected rabbits. The injection of large doses of the unkilled virus produced no immediate harm although in two monkeys certain systemic tract degenerations were detected ten months later, which suggested disseminated sclerosis though it is not claimed that these lesions are disseminated sclerosis. They believe that the best experimental results can be obtained by the intravenous route.

The clinical reports of the results are encouraging though not especially conclusive. (When Sir Purves-Stewart was in Boston in 1931 he gave an account of his experiments. The general reaction of the bacteriologists and neurologists present was not enthusiastic.)

Dreyfus and Mayer[37] believe that they get good results with multiple sclerosis by the use of malaria if the cases are not too far advanced. They test out the capacity of the individual for fever by a preliminary treatment with 8 to 10 intravenous injections of 20 cc. of 40% grape-sugar and .003 to .005 grams strophanthin. They also select patients in good condition. Of fifty-five cases they say fifteen cases did poorly and forty cases did well. The reviewer does not believe that the cases were followed long enough for real conclusions to be reached.

EPILEPSY

Spielmeyer[38] states that there is very little anatomic ground for the belief that there is an idiopathic epilepsy and that it is helpful to classify more and more cases as symptomatic due to injury, infection and the like. He believes however that the anatomic picture in the brain, especially the changes in the cornu-ammonis indicate that vasomotor disturbances are effective in the mechanism of the epileptic attack.

Foerster and Penfield[39] believe that in addition to the focal injury other factors have to be taken into account,—certain definite epileptogenous cortical areas and the postcentral and precentral fields. If the postcentral zone is responsible, a sensory aura is experienced which spreads like a wave. Stimulation in the frontal field produces turning of the eyes, head and body to the contralateral side followed by convulsive movements of the contralateral arm and leg without aura. Stimulation of the parietal field produces turning of the eyes, head and body to the opposite side. Stimulation of the occipital pole is ushered in by visual aura such as light, flames and stars which are usually in the opposite visual field. They strongly advocate encephalography to demonstrate gross cerebral abnormality. During the operation which should be done under local anesthesia, a careful electric exploration of the cortex should be made to see whether the suspected focus is actually the site of the initiation of the discharge.

The authors discuss the development of an epileptic focus. If a wound is made in the brain and the damaged cerebral tissue is not removed, there forms a scar which contains connective tissue and fibrous astrocytes and which becomes densely attached to the overlying meninges. The scar steadily contracts causing a very considerable pull upon the vascular and glial framework of the brain. As a result the brain is distorted so that the ventricles are pulled to the site of the lesion. If, however, the injured cerebral tissue is immediately removed, there is no organization of the connective tissue and there is no cicatricial pull. In other words, they stress, as important, that the function of the brain is altered by changes in its form and symmetry and that the scar on the brain by distorting the nervous structure produces epileptic attacks.

Temple Fay[40] discusses his dehydration method for the treatment of epilepsy in detail in the paper here cited and it should be read in the original for an adequate knowledge of the modus operandi of the author. In the first

place, hospitalization is essential for three to six weeks to establish a basis of fluid balance and to accomplish the desired dehydration. The amount of fluid taken daily, a list of the foods comprising the diet and the total urinary output is daily recorded. Following this an encephalogram is made. Then the patient is permitted 10, 12 or 16 ounces of total fluid in twenty-four hours, depending upon the number and severity of attacks. The fluid must be given in small doses equally divided over the twenty-four hours to relieve the thirst. Fay uses white rock, orange juice and milk. No salt is allowed to be added to the food, although the diet is not salt-free. His own account of the results is encouraging and his method is at present being used both experimentally and therapeutically in many important clinics throughout the world.

The Mayo Clinic has had the largest experience with the use of the ketogenic diet in children. Helmholz and Keith[41] review their eight years of experience. Of 141 persons who have been under treatment for more than a year, 30% have been entirely free of seizures, 23% are improved and 47% have failed to improve. Their experience has not been so favorable with the use of dehydration.

Barborka[42] reports the results of treatment by ketogenic diet in one hundred adult patients, not observed in institutions, who were suffering from idopathic epilepsy. In twelve cases the attacks were controlled, and forty-four cases were definitely improved.

Gamble[43] concludes that the results of this study indicate an underlying disturbance of body fluid volume control in epilepsy. An obstacle to this inference may be admitted; namely, that these observations may be simply products of convulsive state and therefore without pathogenic significance.

Pike, Elsberg, McCulloch and Chappell[44] conclude that (1) clonic convulsions arise from the cerebral motor cortex when this is anatomically and functionally intact. (2) Tonic convulsions arise from the lower motor mechanisms in the period immediately succeeding an injury to the cortical motor mechanisms. After the lapse of sufficient time, clonic responses may be elicited from them. This is, however, no evidence that clonic convulsions may and do arise from the lower motor mechanisms when the cortical mechanisms are intact. (3) Tonic convulsions are absent in the early postoperative stages in animals in which the midbrain has been split longitudinally in the median line, while clonic convulsions persist if the pyramidal system is intact. (4) All parts of the motor mechanisms act together as one system when the brain is intact. It does not seem probable that when the whole motor system is intact, one part of the mechanism gives rise to movements of one type and some other part of the mechanism independently gives rise to movements of another type.

From the aspect of physiologic pathology, Olkon[45] states the presence of abnormal contour and function of the capillary vessels of the skin in certain epileptics. He postulates that if similar circulatory abnormalities exist in the cerebral vessels, resulting disturbances in the supply of blood to the brain may induce seizures.

Morgan[46] describes degenerative changes in the cell nuclei lying in the tuber cinereum. The six brains used in this demonstration were obtained from the Craig Colony, the New York State Institution for epileptics.

Ely[47] brings additional evidence to substantiate the rather widespread opinion that migraine and epilepsy are closely related. Of 104 patients with migraine, 71% gave an ancestral history of migraine. Of 171 persons with epilepsy, 61% gave such history, against 17% for normal persons. The epileptic heredity was 6% in migraine persons, 14% in epileptic and 7% in the normal group.

For a number of years there have been reports from Denmark of a condition called "dysregulation", which was believed at first to be specific for persons with essential epilepsy. This conclusion has been modified or changed by other workers. Madsen[48] has again reviewed the subject, using 20 cases of epilepsy and 20 control individuals. He reports that these persons differ from normal persons in the following respects: They frequently show urine which has an alkaline P.H. or high ammonia content with respect to the nitrogen content of the urine. The fluctuations from normal level are more marked. This is true almost constantly in persons with essential epilepsy but in only one-half the cases which have organic basis for the seizures.

The interesting condition, narcolepsy, is discussed by Serejski and Frumkin[49]. By narcolepsy they understand a condition in which sleep attacks come suddenly and without warning and in the most extraordinary situations. The attacks are short, lasting from one minute to one-half hour. The sleep is easily dissipated by peripheral stimulation. After a consideration of the literature and in the light of their own cases, they believe that the best treatment is through the use of thyroid and hypophysin and they state that this disease is related to epilepsy though the link is vaguely established.

MENIERE'S DISEASE

Dandy[50] states in characteristic categorical manner that Meniere's disease does not follow an infection, never follows an infected mastoid or a focal infection. So far as we know, it is an eighth nerve disease. He states that it can be cured permanently by simply tying the eighth nerve intracranially. The patient loses practi-

cally nothing by this as he is already unilaterally deaf for practical purposes.

TORTICOLLIS

Frazier[51] takes up the surgical treatment of spasmodic torticollis. He strongly advocates cutting, tying or crushing the second, third and possibly the fourth cervical afferent roots on both sides and leaving the efferent roots alone. By this method he believes that permanent cure is established without paresis although at the cost of an anesthesia.

BRAIN AND CORD TUMOR

The displacement of the pineal shadow in cases of brain tumor is presented by Cornelius Dyke[52].

Davis, Haven and Stone[53] continue their attack on the use of lipiodol for subarachnoid block, giving the following reasons as the basis. In the first place, cord lesions can usually be diagnosed without recourse to this method; and secondly, iodized oil in animals brings about definite evidence of leptomeningeal reaction, fat incystment and degenerative changes in the gray matter.

Frazier[54] considers the subject of arachnitis simulating brain tumor. The operative results and the diagnoses are very good. From his own personal series of 22 cases, nineteen patients are alive after periods varying from one to twenty-five years.

SYMPATHETIC NERVOUS SYSTEM

Fulton[55] gives as the physiologic basis of the surgery of the sympathetic nervous system the hyperemia which follows sympathetic resection. Any pathologic process in which healing would be accelerated by hyperemia is an indication for the operation.

Two exceedingly contradictory papers are here cited on the value of sympathetic ramisection for spastic paralysis, paralysis agitans, etc. Royle[56] reports as high as from 75% to 97% of good results in the congenital cases and as high as 60% in the acquired cases. In Parkinson's disease he obtained as high as 68% of fair results. He also obtained excellent results in Raynaud's disease, Buerger's disease, etc.

Symonds and nine other physicians[57] following up six cases operated by Royle conclude that the rigidity of pyramidal disease of the congenital type may be temporarily diminished by the operation but there is no permanent value. They do not believe that the operation has any status in the treatment of spastic weakness. They also conclude that the sympathetic fibres play no rôle of any importance in the maintenance of muscular rigidity.

An important paper on sympathectomy in general is that presented by Rowntree, Adson and Hench[58]. The authors for the purpose of producing vasodilation give rules for the selection of patients for resection of cervical sympathetic ganglia and trunks. (1) Periarticular patients with neurocirculatory changes. (2) The circulatory deficiencies must be capable of correction, indeed of over-correction, under the influence of release from control of the sympathetic apparatus. Brown's vasomotor index shows the possibility of such correction, namely, a definite increase of the cutaneous temperature of the extremities perhaps three to five times greater than the increase of the mouth temperature after typhoid vaccine has been given. (3) Young adults should be selected. Of the seventeen cases so selected, they seem to have had good results in the periarticular types. The presence of bony changes makes the outcome rather hopeless.

The technique of Brown's index is as follows: The patient is given foreign protein (typhoid vaccine) intravenously (50,000,000). The surface temperatures of the hands and feet are estimated and simultaneously the temperature of the mouth is recorded. With the rise of temperature in the mouth there is relaxation of the surface vessels and rapid increase in the temperatures of the skin; the difference between the maximal rise in the surface temperature and the maximal increase in the mouth temperature constitutes the rise in surface temperature which is due largely to vasomotor effects. This value divided by the number of degrees rise in temperature in the mouth or blood gives the value which represents the increase in number of degrees in the surface temperature for each degree of increase in temperature of the body.

Scleroderma has been treated by cervical sympathectomy following the technique in a previous paper. The authors[59] consider that the less advanced chronic group show considerable improvement.

Beall and Jagoda[60] are against sympathectomy on the grounds that irradiation of the ganglia gives better results.

REFERENCES

1 Sachs, Ernest; Wilkins, Harry, and Sams, Crawford, F.: Studies on cerebrospinal circulation by a new method. Arch. Neurol. & Psychiat. 23: 130 (Jan.) 1930.
2 Scharawsky, S. N., and Mandelboim, A. B.: Zucker und chloride des Liquor Cerebrospinalis und ihre klinische Bedeutung. Ztschr. f. d. ges. Neurol. u. Psychiat. 123: 123, 1929.
3 Winkelman, N. W., and Fay, Temple: The pacchionian system. Histologic and pathologic changes with particular reference to the idiopathic and symptomatic convulsive states. Arch. Neurol. & Psychiat. 23: 44 (Jan.) 1930.
4 Hassin, George B.: Villi (pacchionian bodies) of the spinal arachnoid. Arch. Neurol. & Psychiat. 23: 65 (Jan.) 1930.
5 Myerson, A., and Halloran, R. D.: Studies of the biochemistry of the brain blood by internal jugular puncture. Am. J. Psychiat. Nov. 1930.
6 Lennox, William G.: The oxygen and carbon dioxide content of blood from the internal jugular and other veins. Arch. Int. Med. 46: 630, 1930.
7 von Economo, C.: Sleep as a problem of localization. J. Nerv. & Ment. Dis. 71: 249 (Mar.) 1930.
8 Arch. Neurol. & Psychiat. 23: 575, 1930.
9 Pick, E. P.: Pharmacology of the vegetative nervous system. Arch. Neurol. & Psychiat. 23: 582, 1930.
10 Piontkowsky, I. A.: Einfluss des galvanischen Stroms auf die Regeneration durchschnittener Nerven. (Experimentelle Untersuchung.) Arch. f. Psychiat. 91: 269, 1930.

11 Burley, Benjamin T.: The 1930 type of polyneuritis. New Eng. J. Med. 202: 1139 (June 12) 1930.
12 Merritt, H. H., and Moore, Merrill: Peripheral neuritis associated with ginger extract ingestion. New Eng. J. Med. 203: 4 (July 3) 1930.
13 Smith, Maurice I., and Elvove, E.: Pub. Health Rep. July 25, 1930.
Smith, Maurice I.; Elvove, E., and Frazier, W. H.: Pub. Health Rep. Oct. 17, 1930.
14 Strauss, Israel, and Rabiner, Abraham M.: Myeloradiculitis. A clinical syndrome with report of seven cases. Arch. Neurol. & Psychiat. 23: 240 (Feb.) 1930.
15 Lhermitte, J., and Vermès: Les lésions du système nerveaux central dans le zona. Rev. neurol. 1: 1231 (June) 1930.
16 Schuback, A.: Herpes Zoster und Landrysche Paralyse. Ztschr. f. d. ges. Neurol. u. Psychiat. 123: 424, 1930.
17 Gay, Frederick P., and Holden, Margaret: The herpes-encephalitis problem. J. Infect. Dis. 45: 415 (Dec.) 1929.
18 Schaefer, R.: Zur Kenntnis der Encephalomyelitis Disseminata. Deutsches Arch. f. klin. Med. 167: 273, 1930.
19 Gerstmann, J., and Kestenbaum, A.: Monokuläres Doppeltschen bei cerebralen Erkrankungen. Ztschr. f. d. ges. Neurol. u. Psychiat. 128: 42 (Oct. 15) 1930.
Rolleston, Sir Humphry: Vaccination, further report of the committee, London. Published by His Majesty's Stationery Office, 1930.
Holbrook, C. S.: Encephalitis and encephalomyelitis following vaccination against smallpox: report of five cases. South. M. J. 23: 696 (Aug.) 1930.
Krause, F.: Klinische Mitteilung über schwere Defektzustände nach Encephalomyelitis postvaccinalis. Deutsche Ztschr. f. Nervenh. 114: 214, 1930.
Hassin, George B., and Geiger, J. C.: Postvaccinal (cowpox) encephalitis: a clinico-pathologic report of a case. Arch. Neurol. & Psychiat. 23: 481 (Mar.) 1930.
Zappert, J.: Die postvaccinale Encephalitis in Wien und Niederösterreich im Jahre 1929. Wien klin. Wchnschr. 80: 127 (Jan. 18) 1930.
20 Paschen, E.: Zur Frage der postvakzinalen Enzephalitis. Deutsche med. Wchnschr. 56: 219 (Feb. 7) 1930.
21 Riley, Henry Alsop: Epidemic encephalitis. Arch. Neurol. & Psychiat. 24: 574 (Sept.) 1930.
22 Stewart, Winifred B., and Evans, Mary J.: Preliminary notes on bacteriologic studies and treatment of chronic epidemic encephalitis. Am. J. M. Sc. 180: 256 (Aug.) 1930.
23 Zinnemann, Kurt: Die Therapie der chronischen Encephalitis. Ztschr. f. d. ges. Neurol. u. Psychiat. 130: 310, 1930.
24 Hoedemaker, Edward D., and Burns, M. A.: The effect of stramonium in parkinsonism. Arch. Neurol. & Psychiat. 24: 869 (Oct.) 1930.
25 Sternberg, Erich: Ueber die Stramoniumbehandlung extrapyramidaler Erkrankungen. Nervenarzt. 3: 13 (Jan.) 1930.
26 Jacobson, A. L., and Epplen, F.: Later results in the use of stramonium in post-encephalitic syndrome. Ann. Int. Med. 4: 145 (Aug.) 1930.
27 Crouzon, O., and Justin-Besançon, L.: Le Parkinsonisme Traumatique. Presse méd. 37: 1325 (Oct. 12) 1929.
28 Mozer, Kurt: Zur versorgungs-und versicherungsrechtlichen Beurteilung und Beurteilung und Begutachtung organischer Nervenkrankheiten. (Multiple Sklerose, amyotrophische Lateralsklerose, Syringomyelie, Parkinsonismus.) Arch. f. Psychiat. 91: 411, 1930.
29 Delherm, L., and Morel-Kahn, M.: Treatment of syringomyelia by roentgentherapy. Am. J. Surg. 9: 302 (Aug.) 1930.
30 Fay, Temple: Generalized pressure atrophy of the brain—secondary to traumatic and pathologic involvement of pacchionian bodies. J. A. M. A. 94: 245 (Jan. 25) 1930.
31 Harris, Noel G.: Treatment of general paralysis of the insane by injection of sulphur. Lancet 1: 1068 (May 17) 1930.
32 Patterson, William G., and Switzer, S. R. L.: Sulfosin therapy in general paralysis of the insane. Lancet 2: 348 (Aug. 16) 1930.
33 McDermott, Elizabeth B.: The Kahn presumptive procedure with spinal fluids. Arch. Neurol. & Psychiat. 23: 531, 1930.
34 Purves-Stewart, Sir James: Vaccine treatment of disseminated sclerosis. Brit. M. J. 1: 950 (May 24) 1930.
35 Chevassut, Kathleen: The aetiology of disseminated sclerosis. Lancet 1: 552 (Mar. 15) 1930.
36 Hicks, J. A. B.; Hocking, F. D. M., and Purves-Stewart, Sir James: A specific vaccine treatment in disseminated sclerosis. Lancet 1: 561 (Mar. 15) 1930.
37 Dreyfus, George L., and Mayer, Karl: Die Malariabehandlung der multiplen Sklerose. Deutsche med. Wchnschr. 56: 863 (May 23) 1930.
38 Spielmeyer, W.: Anatomic substratum of the convulsive state. Arch. Neurol. & Psychiat. 23: 869 (May) 1930.
39 Foerster, O., and Penfield, Wilder: The structural basis of traumatic epilepsy and results of radical operation. Brain 53: 99 (July) 1930.
40 Fay, Temple: Therapeutic effect of dehydration on epileptic patients. Arch. Neurol. & Psychiat. 23: 920 (May) 1930.
41 Helmholz, H. F., and Keith, H. M.: Eight years' experience with ketogenic diet in the treatment of epilepsy. J. A. M. A. 95: 707 (Sept. 6) 1930.
42 Barborka, C. J.: Epilepsy in adults. Results of treatment by ketogenic diet in one hundred cases. Arch. Neurol. & Psychiat. 23: 904, 1930.
43 Gamble, J. L.: Epilepsy, evidences of body fluid volume disturbance. Arch. Neurol. & Psychiat. 23: 915, 1930.
44 Pike, F. H.; Elsberg, C. A.; McCulloch, W. S., and Chappell, M. N.: Problem of localization in experimentally induced convulsions. Arch. Neurol. & Psychiat. 23: 847 (May) 1930.
45 Olkon, D. M.: "Genuine epilepsy"; studies of microscopic changes in capillary system as probable etiologic factor. J. Nerv. & Ment. Dis. 72: 538, 1930.
46 Morgan, L. L.: The nuclei of region of tuber cinereum; degenerative changes in cases of epilepsy, with discussion of their significance. Arch. Neurol. & Psychiat. 24: 267 (Aug.) 1930.
47 Ely, F. A.: The migraine-epilepsy syndrome: a statistical study of heredity. Arch. Neurol. & Psychiat. 24: 943 (Nov.) 1930.
48 Madsen, J.: Variations in hydrogen ion concentration and ammonia value, with special reference to "dysregulatio ammoniaci". Compt. rend. Soc. de biol. 103: 1289 (May 1) 1930.
49 Serejski, M., and Frumkin, I.: Narkolepsie und Epilepsie. Ztschr. f. d. ges. Neurol. u. Psychiat. 123: 233, 1930.
50 Dandy, W. E.: Tic douloureux and Meniere's disease. Interstate Post Graduate Medical Association of N. A. 1930, p. 509.
51 Frazier, C. H.: The immediate effect of rhizotomy on spasmodic torticollis. Arch. Neurol. & Psychiat. 23: 1291 (June) 1930.
52 Dyke, Cornelius G.: Indirect signs of brain tumor as noted in routine roentgen examinations. Am. J. Roentgenol. 23: 598 (June) 1930.
53 Davis, L.; Haven, Hale A., and Stone, T. T.: The effect of injections of iodized oil in the spinal subarachnoid space. J. A. M. A. 94: 772 (Mar. 15) 1930.
54 Frazier, C. H.: Cerebral pseudotumors. Arch. Neurol. & Psychiat. 24: 1117 (Dec.) 1930.
55 Fulton, J. F.: The physiological basis of the surgery of the sympathetic nervous system. New Eng. J. Med. 203: 555 (Sept. 18) 1930.
56 Royle, N. D.: The clinical results following the operation of sympathetic ramisection. Brit. M. J. 2: 628 (Oct. 18) 1930.
57 Symonds, C. P., and others: On the value of ramisection in cases of spastic weakness. Lancet 2:127 (July 19) 1930.
58 Rowntree, L. G.; Adson, A. W., and Hench, P. S.: Results of resection of sympathetic ganglia and trunks in seventeen cases of chronic "infectious" arthritis. Ann. Int. Med. 4: 447 (Nov.) 1930.
59 Brown, G. E.; O'Leary, P. A., and Adson, A. W.: Diagnostic and physiologic studies in certain forms of scleroderma. Ann. Int. Med. 4: 531 (Dec.) 1930.
60 Beall, K. H., and Jagoda, S.: Texas State J. Med. Aug. 1930.

MORTALITY RATES

Telegraphic returns from 83 cities with a total population of thirty-six million for the week ending January 16, 1932, indicate a mortality rate of 12.1 as against a rate of 14.0 for the corresponding week of last year. The highest rate (20.0) appears for Memphis, Tenn., and the lowest (5.5) for Flint, Mich. The highest infant mortality rate (15.2) appears for Knoxville, Tenn., and the lowest for Albany, N. Y., Des Moines, Iowa, Kansas City, Kans., Long Beach, Calif., Lynn, Mass., Salt Lake City, Utah, Trenton, N. J., and Waterbury, Conn., which reported no infant mortality.

The annual rate for 83 cities is 12.5 for the two weeks of 1932, as against a rate of 14.0 for the corresponding period of the previous year.

SURGEON GENERAL CUMMING RENAMED ON PUBLIC HEALTH SERVICE

Dr. Hugh S. Cumming, Surgeon General of the United States Public Health Service, Department of the Treasury, on January 26 was reappointed to his office by President Hoover. His nomination on that day was sent to the Senate for confirmation, according to an announcement issued at the White House.—*U. S. Daily.*

CASE RECORDS
of the
MASSACHUSETTS GENERAL HOSPITAL

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICAL-PATHOLOGIC EXERCISES

EDITED BY RICHARD C. CABOT, M.D.
F. M. PAINTER, A.B., ASSISTANT EDITOR

CASE 18051*

DYSPNEA AND PRECORDIAL PAIN OF TWENTY-FOUR HOURS' DURATION

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. M. MORRIS PINCKNEY†: A sixty-three year old Finnish carpenter entered complaining of marked dyspnea, weakness and severe precordial pain of twenty-four hours' duration.

There was heart trouble in the family. Otherwise the marital, family, social and occupational histories are irrelevant.

He had been extremely healthy throughout his life except for the fact that during the past ten years he had had slight morning cough in which he raised a small amount of whitish sputum. Also for a long time he had had what he described as attacks of indigestion. These attacks usually came in the night. With them he vomited a small amount of watery material with relief. The last attack of so-called indigestion was two and a half months before entry. He had not been working for a year until a week before entry, when he returned to work. A week after he commenced working he got up in the night feeling perfectly well, when he had sudden pain in the epigastrium radiating up under the sternum. He felt nauseated and vomited once. He took soda and was slightly relieved, though not enough to make him feel comfortable. He was slightly short of breath. He continued working the next day however and through the week, being always a little bit under par, with slight weakness and dyspnea on exertion. He slept poorly at night. His wife told us he was restless throughout the night. Early in the morning twenty-four hours before he came in he had sudden severe pain in the epigastrium, mostly on the right side, radiating through his chest to below the right shoulder blade. This doubled him up with its severity. He was choked for breath and felt as though he were strangled. A doctor was called to see him, who gave him some pills which had no effect. The doctor thought that he was slightly jaundiced. His wife thought so as well. Four hours later he had another terrific pain over his heart, by far the most severe attack he had had. This almost completely knocked him out. He thought he was going to die. He was gasping for breath and became very cold. There were two gray stools, one the afternoon before admission, the other early in the morning of admission. He was brought to the Emergency Ward immediately.

Physical examination showed an elderly man propped up in bed, cyanotic and breathing with great difficulty. The lungs showed sibilant and sonorous râles throughout, with numerous moist râles at both bases posteriorly. There was vesicular breathing and dullness at the left base. Owing to the sounds in his chest examination of the heart was unsatisfactory. The heart sounds were of very poor quality. The rhythm was occasionally irregular. The blood pressure was 100/80. The radials and peripheral vessels were tortuous and firm. There was slight tenderness in the epigastrium, mostly on the right side. There was dullness with no tenderness in the lower abdomen extending from the symphysis to the umbilicus. The rest of the examination was not significant.

He was taken to the ward and kept in bed in the orthopneic position. He was catheterized and 3 ounces of residual urine was found.

Laboratory work showed a red cell count of 5,000,000, white cells 29,000, polynuclears 84 per cent. We obtained no stools while he was in the hospital. The urine showed a fair output, the intake averaging around 100 ounces and the output 30 ounces. The specific gravity was 1.026 to 1.022. There was a slight trace of albumin at only one examination. The sediment showed about 50 white blood cells and 70 red cells per high power field and was loaded with finely granular and hyalin casts. The non-protein nitrogen was 100. A Hinton test was negative.

An electrocardiogram showed the coronary type T waves in the second and third leads, with slurred QRS complexes.

His temperature on admission was 99.4°, his pulse 120. The respirations were 32.

The night he was admitted he began to have slight Cheyne-Stokes breathing, so that it was necessary to keep him in a sitting position. He was very drowsy most of the time. We had difficulty in arousing him to take fluids. On the fourth day he gradually faded out.

DR. JOHN P. MONKS: Did he have edema of the ankles?

DR. PINCKNEY: I have no record of it.

*This report gives the essentials of two discussions, one in Dr. Cabot's Third Year class, one at a conference of the hospital staff.

†Recently senior interne on the West Medical service.

Clinical Discussion

BY RICHARD C. CABOT, M.D.

NOTES ON THE HISTORY

The opening sentence of that history by itself makes us think of a blocked coronary artery. The fact that he was in good health until a week before admission makes us think of it still more.

He did not have marked passive congestion or cardiac failure.

He looked slightly jaundiced,—especially to those who thought it might be a gall stone attack. Of course that is in our minds too, but it seems improbable.

The fact that the attacks of pain the day before admission occurred in the morning is important, because gall stone attacks are much more likely to come at night.

Of course gray stools, the radiation of one attack of pain and the jaundice suggest gall stones. On the other hand the way this attack comes, his apparently moribund condition, which we do not expect with a gall stone attack, and the fact that the pain at last comes over the heart and is associated with cardiac symptoms makes the original guess with which I started off much more probable. Coronary block is what I expect as we go on.

There was heart trouble in the family. So far as that means arteriosclerosis, perhaps in the coronaries, that is important, because that does run in families.

I think his attacks of vomiting at night have no connection with the present trouble.

One wonders whether that "acute indigestion" means another attack, miscalled, of the same thing he has now.

NOTES ON THE PHYSICAL EXAMINATION

There was apparently some cardiac enlargement.

There is a strikingly low pulse pressure on all occasions, which goes very well with the condition I have been considering.

The heart examination and the electrocardiogram go very well with coronary block.

The fact that the residual urine was only 3 ounces is queer, because the whole bladder region seemed dull.

The leukocytosis is the essential thing in the blood report. We must try to explain that later.

DIFFERENTIAL DIAGNOSIS

He died, I believe, of a blocked coronary artery. I do not seem to think of anything else at all probable. He had no true cardiac history. I know no other cardiac disease which can suddenly appear at this age and kill a man as quickly as this did. The low blood pressures, the character of the pain, the associated cardiac failure and the electrocardiographic findings I have no hesitation in saying are all attributable to coronary block. In most of the cases of this sort there are found postmortem evidences of old earlier infarctions as well as the one that finally killed the patient. I expect such evidence here. I suppose the coronary arteries will show sclerosis and I suppose the heart will show some enlargement.

A Student: Do you disregard the stools and the jaundice?

Dr. Cabot: Yes; on the whole it seems to me I must. Should you like to take the other side?

A Student: He might have had both coronary block and gall bladder infection.

Dr. Cabot: He might. I never have seen just that combination, however. No man is apt to die so suddenly as this with those two things in combination. We do not know how severe that pain was, of course. A man does not ordinarily work with pain directly due to blocked coronary. We can suppose that some other less important cause of pain may also have been present.

A Student: What about the leukocytosis and the fever? They are signs of infection, aren't they?

Dr. Cabot: That is a good point. Should you like to suggest where that infection might be?

A Student: In the gall bladder.

Dr. Cabot: That is a possibility; but what infection do we usually or very often get with blocked coronary?

Students: Bronchopneumonia.

Dr. Cabot: Local pericarditis occurs just over the infarction very often. We get an intracardiac thrombus inside, and corresponding to that, local pericarditis outside and leukocytosis from one or both. I am persuaded that we can get it from an intracardiac thrombosis alone.

A Student: Is the finding of casts of any importance?

Dr. Cabot: Not of much importance. Years ago Osler startled the country by publishing a paper called, "On the advantages of a trace of albumin and a few tube casts in the urine of certain men above fifty years of age*." His point was that it does not mean kidney disturbance, but that the man was probably overdoing a little. By cutting down in his work he probably would do well. Osler followed that rule himself. He left the Johns Hopkins Medical School and took to living at Oxford on something approaching a sinecure, though he never has revealed whether he had albumin and tube casts. I made an investigation myself in this hospital once, taking all the old people in the wards, including those with broken legs and so

*N. Y. Med. J., 1901, lxxiv. In Osler's collected reprints iv, No. 227.

on, and I found that almost all of them had albumin and casts in the urine, generally not noticed by the surgical internes. They were not associated with any symptoms of kidney trouble. This man had arteriosclerosis in the coronaries. He quite possibly had hypertension and hypertensive kidneys to go with it, though the facts mentioned here would not make me think so at all. Hyalin and granular casts in people past middle life are so common without nephritis that I should not pay any attention to them. Possibly he had had some back pressure on his kidneys and some functional renal insufficiency, in the past, judging from his trouble in urinating; possibly also a little cystitis, accounting for the whites and reds in the urine. It looks to me however as if the kidneys were doing their job. Whether Dr. Mallory finds hyalin changes in the blood vessels or whatever he finds, they were functionally sufficient kidneys at the time of this illness I should say.

CLINICAL DIAGNOSES (FROM HOSPITAL RECORD)

Hypertensive and arteriosclerotic heart disease with congestive failure.
Coronary thrombosis.
Chronic nephritis.
Uremia.

DR. RICHARD C. CABOT'S DIAGNOSES

Coronary sclerosis and block.
Cardiac infarcts, old and fresh.
Hypertrophy of the heart.
Probably hypertension, with hypertensive kidneys.
Possibly slight acute pericarditis.
Prostatic obstruction.

ANATOMIC DIAGNOSES

1. *Primary disease.*

Thrombi in the right coronary artery.
Cardiac infarcts, old and fresh, with rupture of one of the flaps of the mitral valve.

2. *Secondary or terminal lesions.*

Hypertrophy of the heart.
Slight acute pericarditis.
Thrombophlebitis of the portal vein with occlusion of numerous intrahepatic branches.
Extensive central necrosis of the liver.
Slight arteriosclerosis of the kidneys.
Slight hypertrophy of the prostate.

PATHOLOGIC DISCUSSION

DR. MALLORY: The autopsy in this case showed an infarct of the heart, as one would expect of course; in fact both a fresh one and evidence of one or more old ones. There were numerous fibrous scars in the myocardium plus a fresh area of necrosis. The most striking feature about the fresh necrosis was that it had involved the base of one of the papillary muscles, which had ruptured and broken off, so that one flap of the mitral valve was floating free in the blood stream with no downward attachment at all. He had two thrombi in the right coronary artery, one fairly near the base, another well out toward the periphery of the vessel. The heart weighed 450 grams. There was a slight pericarditis, as Dr. Cabot suggested.

In addition there was a very peculiar liver. It was distinctly small, whereas in the average old cardiac case one expects a large congested liver. When it was fresh it had an extraordinary consistency, the whole liver seeming fluctuant, so that when we cut into it we almost expected to find pus. We did not find any. The gall bladder and bile ducts were negative, but there was a thrombophlebitis of the portal vein which had caused partial occlusion of the extrahepatic portion, multiple intrahepatic thrombi and extensive necrosis of the liver, all very recent and fresh. For the most part the necrosis was central, but in many areas entire lobules were destroyed. Such lesions may or may not cause jaundice.

DR. CABOT: Was he definitely jaundiced at autopsy? They do not say so in the report of the clinical examination.

DR. MALLORY: Yes, he was.

The kidneys were essentially normal. There was a slight degree of arteriosclerosis, but they did not in the least suggest kidneys which would cause uremia.

The prostate was slightly enlarged, but there was no evidence of any marked degree of retention. I am sure he could not have had uremia from that.

A PHYSICIAN: Did you find anything in the peritoneal cavity?

DR. MALLORY: It was negative.

A PHYSICIAN: Was there any ascites?

DR. MALLORY: No.

DR. FREDERICK T. LORD: Though the blood pressure is usually low with coronary thrombosis and cardiac infarction, in a recent experience in a man of eighty with a previous level of 170/90 to 200/100, four hours after the onset of severe precordial and epigastric pain it was 220/120. The pain lasted about fourteen hours. At its termination the blood pressure was 180/120. The patient lived for eleven days without recurrence of pain and during this period the blood pressure ranged from 145/100 to 190/120. At autopsy Dr. Mallory found coronary thrombosis and an extensive area of cardiac infarction.

DR. MALLORY: I certainly should not expect

the pressure to hold up so well after a large infarct.

DR. CABOT: What connection, if any, is there between the two findings, the thrombus in the portal vein and those in the coronary artery?

DR. MALLORY: I do not believe one can make any more definite connection than to suggest the possibility that both were of infectious origin. I think there is no doubt that the thrombus in the portal vein and the extremely acute degenerative change in the liver were due to an infectious process. Our blood cultures at autopsy were negative. Yet with the temperature and the high white cell count I think there is a great deal to suggest an acute terminal infection. That may or may not have been the cause of the coronary thrombosis. Authorities differ a great deal as to the importance of infection in such cases. Some claim that coronary thrombosis is always due to infection, but I do not see how they can possibly prove it.

DR. CABOT: Then the mechanical factor is not the whole thing in coronary block.

DR. MALLORY: No.

A STUDENT: How old was the first infarction?

DR. MALLORY: A matter of months at least. That need not surprise one at all. Out of 300 autopsies in a year we usually see at least five infarctions of the heart that have never given any symptoms.

One other thing that interested me was the very high non-protein nitrogen in the face of practically normal kidneys. This may check up with the cardiac failure, as in the hypertensive case we had just before vacation where, following bleeding, a marked drop in blood pressure occurred and anuria followed. On the other hand I have developed a very definite impression from our autopsy series that a considerable number of cases of acute necrosis of the liver, especially in acute yellow atrophy, are apt to have quite a high non-protein nitrogen without histologic evidence of renal damage. I have no idea what the reason for that is, but I am inclined to correlate a high non-protein nitrogen with necrosis of the liver.

DR. CHESTER M. JONES: I think a great many cases of serious liver injury have had a high non-protein nitrogen.

DR. CABOT: One of the things that has come out quite strongly in this case is that besides the cases of cardiac infarction that we diagnose, there are many more that we do not and presumably never shall get unless there are some methods of examination that we do not yet know anything about. I suppose it depends upon how rapidly the necrosis happens and how big the infarcts are.

CASE 18052

GENERALIZED EDEMA AND GLANDS

MEDICAL DEPARTMENT

PRESENTATION OF CASE

DR. M. MORRIS PINCKNEY*: This patient was a fifty-six year old Scotsman who had three admissions to the hospital.

First admission. He first came in complaining of aching in the right hip of four and a half months' duration. Six weeks before the onset of this he had sudden sharp pain in the left lower quadrant. One month later he had an exploratory operation. Two weeks after this he had aching in the right hip. Two months later he had lumps in the left axilla. Two biopsies were done.

He was given a course of x-ray therapy and discharged at the end of five weeks symptom free.

History of interval. One week after discharge he had a sense of pressure in the abdomen. He was advised to return to the hospital for more x-ray treatment.

Second admission. He reëntered two weeks after his discharge. Physical examination showed recurrence of the glands in the axillae.

He was given another course of x-ray treatment and was again discharged symptom free.

History of interval. After his second discharge he felt well for eleven weeks. Then, eight months before his third admission, he had pain in the left buttock radiating to the lower leg. He was given a course of x-ray treatment. The pain disappeared in two months. Four months before readmission he caught cold and developed shingles on the right side of the back and abdomen. Two weeks before readmission small excoriations appeared over the body and extremities. The extremities began to swell. He vomited three times three hours after meals without nausea or pain. He lost strength rapidly.

Third admission, ten and a half months after his last discharge.

Physical examination showed a poorly nourished man. The skin was extremely pale, with multiple pinhead sized scratches over the chest and arms. The feet and lower legs, the abdomen, back, chest, upper arms and forearms showed marked soft pitting edema. There was a scar of herpes on the lower right side of the abdomen extending from the midline in front to the midline posteriorly and down to the right buttock. There were bilateral posterior and anterior cervical glands in chains. The heart sounds were poor. The pulses were fairly weak. There were no murmurs or thrills. The blood pressure was 110/70. The abdomen was too distended for sat-

*Recently senior interne on the West Medical service.

isfactory examination. There was tenderness under the right costal margin, but no dullness to percussion. We were unable to palpate the liver or spleen.

His course in the hospital was unchanged from the first week. The urine consistently showed a low specific gravity, a trace to a large trace of albumin and rare to large numbers of white cells per high power field. Only five of sixteen examinations showed rare to occasional red cells and those followed catheterization. The renal function was 15 per cent. Blood examination showed hemoglobin 45 per cent, white cells 7,650, red cells 2,440,000, platelets normal. The serum protein was consistently low, 4.2 to 4.8 per cent. The cholesterol was 140 to 200. The non-protein nitrogen was normal until the last few days of life, when it rose to 67.

The temperature was 97° to 100° until the terminal stage, when it dropped. One week after admission he had a return of his shingles pain. In the sixth week he had a generalized convulsion and a period of unconsciousness. Three weeks later he had a prolonged convulsion with delirium and inability to talk. Apparently he had severe headache and low backache. He remained semicomatose until he died, two days later.

Dr. George W. Holmes: We have two series of films here, one in the early stages of the disease and one in the later stages. The picture is not at all characteristic of Hodgkin's disease or lymphoblastoma, but it is consistent with it. He has a very definite process at the left apex, also evidence of involvement of the pleura and at the left base. From these films alone such an appearance might be due to tuberculosis. We see it often however in cases of Hodgkin's disease that have had a certain amount of radiation. After a series of treatments the dullness at the apex cleared up almost entirely and the fluid at the base disappeared. That one would not expect with tuberculosis.

At his next visit we have a somewhat similar appearance except that the fluid involvement is on the right instead of the left. There is more trouble at the right apex than in the previous films. After treatment the fluid disappeared and the apices cleared up somewhat. This change at the left apex persisted throughout his stay. It certainly is not exactly what one would expect to find in ordinary cases of Hodgkin's disease or lymphoblastoma.

At his last visit this film was taken. It shows recurrence of the process at both bases, with elevation of the diaphragm and obliteration of the costophrenic sinuses without any change at the apices or evidence of mediastinal masses.

Clinical Discussion

Dr. William Bradford Robbins: The question of amyloid came up on the basis of the long continued anemia. That was an interesting fact from my point of view. I am interested to know what was found.

Dr. Chester M. Jones: In cases of metastatic Hodgkin's disease involving the kidneys do we get a urinary picture like that of amyloid disease or nephrosis? This man presented a picture of nephrosis at the end. I have been wondering whether Hodgkin's infiltration of the kidney would give any such picture.

Dr. Tracy B. Mallory: I should not think so, but I do not know. I have not often seen Hodgkin's disease involving the kidney. Aleukemic leukemia commonly infiltrates the kidney. The cases of this which we have had have shown marked rise in the non-protein nitrogen and a picture of retention, not the nephrotic syndrome.

Dr. James E. Fish: May I ask what the feeling on the medical side is in regard to the test for amyloid disease with intravenous Congo red?

Dr. Walter Bauer: I do not think anybody uses it with any sufficient degree of regularity for us to be able to interpret the test. We do about two a year.

Dr. Fish: We are interested on the surgical side in the reliability of this test for amyloid degeneration, particularly as an indication for considerably more radical treatment of long-standing surgical sepsis such as chronic osteomyelitis.

Report on Biopsy, First Admission

Lymphoblastoma, Hodgkin's type.

Clinical Diagnoses (from Hospital Record)

Lymphoblastoma, Hodgkin's type.
Herpes zoster.

Anatomic Diagnoses

Lymphoblastoma, Hodgkin's type.
Tuberculosis of the apex of the left lung.
Amyloid degeneration of the spleen, liver and kidneys.
Slight bronchopneumonia.

Pathologic Discussion

Dr. Mallory: Amyloid disease has become an extremely rare finding in this hospital. This case did show it. It is only the second case in one thousand autopsies, one to five hundred autopsies. That is getting down among the great rarities. If this institution kept cases of chronic tuberculosis, however, until they came to autopsy we should get more of it. Amyloid has not disappeared, but segregation of cases in specialized hospitals prevents us from seeing it.

Autopsy showed a more or less generalized lymph node enlargement, the lesions for the most

part being grossly suggestive of Hodgkin's disease, though there were a few nodes, among them two bronchial nodes, which looked like a healed tuberculous process.

There was a very definite tuberculosis at the left apex and a smaller process at the right apex, neither of them active however. The spleen, liver and kidneys were all a little larger than normal. There was no evidence of tumor involvement, but they were paler and felt at autopsy a little firmer than they should. I did not feel perfectly sure from the gross appearance whether there was amyloid or not, but fresh frozen sections showed it very easily. In the fixed spleen sago bodies are grossly evident which could not be made out when the material was fresh.

DR. HOLMES: Are the damaged liver cells outside the treated area?

DR MALLORY: Yes, essentially.

The lung shows here and there a tubercle and in some other areas slight bronchopneumonia.

DR. HOLMES: Why did he have amyloid disease?

DR. MALLORY: I imagine it was secondary to Hodgkin's. Most cases of amyloid disease show chronic sepsis of some sort or other, but there is a considerable number reported in which no infection can be made out at all. Cases have been reported with leukemia, with carcinoma and hypernephroma and a variety of other malignant tumors. So I do not think we have to assume that Hodgkin's is an infectious disease in order to explain the amyloid.

A PHYSICIAN: Was anything found to explain the convulsion?

DR. MALLORY: No, although uremic convulsions may occur in a man of fifty-six with relatively slight nitrogen retention. We have one rather definite case with a non-protein nitrogen of 63.

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THE COMMONHEALTH

THE fall issue of the *Commonhealth*, the quarterly publication of the State Department of Public Health, gives us again a masterly symposium, this time on lobar pneumonia, and furnishes another instance of the blessing of an able, active and helpful Department for which we all are, or should be, grateful. The seven sections, in addition to a foreword by Dr. Bigelow, are by experts in their chosen lines, yet indicate pointedly one fact; that, barring oxygen tent therapy, the only improvement in the treatment of lobar pneumonia in generations has been through the improvement in serum therapy. In these chapters the epidemiology of pneumonia is discussed by Dr. Milton J. Rosenau, the diagnosis by Dr. Frederick T. Lord, prophylaxis and treatment by Dr. Edwin A. Locke, serum therapy in type I lobar pneumonia by Dr. W. D. Sutliff, pneumococcus type determination by Edith Beckler, S.B., antipneumococcic serum by Dr. Benjamin White, nursing care by Walborg Peterson, R.N., and the Massachusetts pneumonia plan by Dr. Roderick Heffron.

Results with types I and II antipneumococcic sera, concentrated by the Felton method, seem to indicate that these sera, particularly the former, are efficacious in shortening the duration and improving the mortality in these types, provided typing is performed early and the serum administered in the first four days of the disease—the earlier the better. These results have been obtained during the preliminary observations on the employment of the sera, when they were released only to certain hospitals, under carefully controlled conditions, and have justified an extension of the Service to render it more widely available to the commonwealth. This product, now being manufactured at the Massachusetts Antitoxin and Vaccine Laboratory under a grant from the Commonwealth Fund of New York City, and available only for hospitals and physicians coöperating in the special Pneumonia Study and Service, is also manufactured by some of the commercial laboratories and can be purchased from them.

According to the present Massachusetts Pneumonia Plan, various laboratories conveniently located over the State are chosen as pneumococcus typing centers. In each location served by a typing station a few local physicians are selected by the advisory committee to serve as clinical collaborators or consultants. These consultants will have the concentrated serum for distribution to the proper cases and may charge their usual fees for such consultation or, if the patient is unable to pay the fee, a small uniform fee will be paid to the consultant from the special Pneumonia Service fund. In return for the serum, detailed and uniform records of all cases treated are to be submitted. In this connection it must be remembered that sufficient serum to treat one patient costs about one hundred dollars.

There will, of course, be critics of this method of conducting the Service as there are critics of every effort of the State to improve the condition of its citizens; as there are critics of every progressive step which has ever been taken. It must be borne in mind, however, that antipneumococcic serum is a costly product and must be utilized effectively, and that its use is still in the experimental stage and must still be carefully controlled.

THE GIFT OF THE HENRY BARTON JACOBS COLLECTION OF BOOKS AND MEDALS TO THE WELCH MEDICAL LIBRARY

DR. HENRY BARTON JACOBS of Baltimore, Maryland, has given his unusual collection of books, prints and medical medals to the William H. Welch Library of Johns Hopkins University. The Jacobs library, begun many years ago under the guiding influence of the late Sir William Osler, contains noteworthy books of historical importance. Dr. Jacobs became interested in tuberculosis soon after he graduated from the Massachusetts General Hospital as a house officer in 1888 and his first books were those of Laennec, the discoverer of the stethoscope and the first author to clearly differentiate diseases of the lung. This section of the library has now grown to include all the editions of Laennec's "De L'Auscultation Médiate" (1819), books about the man, and the works of his contemporaries in France and elsewhere which deal with the subject of tuberculosis. It is probably the most complete collection about Laennec and his time in existence and certainly in no other library can be found all the editions of Laennec's epoch-making work.

Coincident with his interest in Laennec and tuberculosis, Dr. Jacobs began to acquire works on vaccination, including the various editions of Jenner's "Inquiry into the Causes and Effects of Variolae Vaccinae," first published in 1798. With this volume as a nucleus, other books about the same subject have been gathered until this section of the library, too, is almost unique. The work on the causes of tuberculosis and other diseases led Dr. Jacobs to collect also the works of Pasteur and his colleagues. The Pasteur items are numerous and form a notable part of the library. In addition to these three corner-stones there are books on similar subjects, Osleriana, files of early journals, hundreds of engravings of medical men, a small but valuable collection of medical medals, and many letters, including those of Laennec, Jenner and Pasteur.

This library of about 5,000 volumes has been

DONOR AND SPEAKERS AT ACCEPTANCE OF THE JOHNS HOPKINS UNIVERSITY GIFT

Left to Right—Dr. William H. Welch, Blanchard Randall, Trustee, Johns Hopkins University, Dr. Henry Barton Jacobs, Dr. Harvey Cushing, and Colonel Fielding H. Garrison.

installed in a special room, under the careful direction of Dr. Jacobs himself, and the books were formally presented to the library at a ceremony on January 14, 1932, with appropriate

BOOK-PLATE OF DR. HENRY BARTON JACOBS.

addresses by Joseph F. Ames, President of Johns Hopkins University, Dr. William H. Welch, Dr. Harvey Cushing, Dr. Fielding H. Garrison and Dr. Jacobs. The books were accepted by Blanchard Randall, a trustee of the University.

THE AWARD OF THE BIGELOW MEDAL

On February 1, an entertainment of great interest was provided for the medical profession, when the Bigelow Medal was awarded to Professor John M. T. Finney of the Johns Hopkins Medical School before a large gathering of surgeons and their friends in John Hancock Hall.

Previous to the formal exercises Dr. Finney was entertained at dinner at the Harvard Club, Dr. Fred B. Lund, President of the Boston Surgical Society, acting as host.

Dr. Stephen Rushmore was the chairman at the meeting at John Hancock Hall and, after paying a glowing tribute to the guest of the Boston Surgical Society, who was his teacher in surgery, gave way to Dr. Lund who presented an account of the important positions and accomplishments of Dr. Finney. At the close of his address Dr. Lund presented the Bigelow Medal to Dr. Finney who followed with expressions of his appreciation of the honor thereby conferred. He then read his prepared address portraying his early experiences as house officer at the Massachusetts General Hospital which led to his appointment on the Surgical Staff of Johns Hopkins Medical School.

Dr. Finney depicted interesting characteristics of the prominent members of the staff of the Massachusetts General Hospital as he observed them while serving in that institution and expressed his admiration both for the hospital and the men who had contributed to its importance in medical service. A very interesting feature of his discourse was that dealing with the faculty of the Johns Hopkins Medical School and especially with those members who had devoted their lives to its upbuilding, emphasizing his admiration for the outstanding ability of Dr. Halsted as a teacher and organizer.

The address was replete with allusions to the personal characteristics of those great men with whom he had been associated.

The introductory address of Dr. Rushmore, that of Dr. Lund when conferring the Medal and the paper by Dr. Finney will appear in an early issue of the *Journal*.

THIS WEEK'S ISSUE

Contains articles by the following named authors:

Yakovlev, Paul I. M.D. Faculté de Medecine de l'Université de Paris 1925. Assistant, Department of Neuropathology, Harvard Medical School. Address: Monson State Hospital, Palmer, Mass. Associated with him is:

Cobb, Stanley. A.B., M.D. Harvard University Medical School 1914. Bullard Professor of Neuropathology, Harvard Medical School. Visiting Neurologist, Boston City Hospital. Address: Boston City Hospital, Boston. Their subject is "Hepato-Lenticular Degeneration. Report of a Case with Autopsy." Page 207.

Smith, Millard. M.S., B.S., M.D. Harvard University Medical School 1923. Formerly Assistant Professor of Medicine, University of Michigan. His subject is "A Study of 102 Cases of Atrophic Arthritis. III. Etiologic Factors." Page 211. Address: 472 Commonwealth Avenue, Boston.

Morrison, Thomas J. P.S., M.D. Vermont University 1909. His subject is "Early Diagnosis of Cancer of the Larynx." Page 217. Address: Somersworth, New Hampshire.

Vickery, Eugene A. M.D. Harvard University Medical School 1903. F.A.C.S. Commander, Medical Corps, United States Navy, retired. Address: Portsmouth, New Hampshire. Associated with him is:

Chesley, Harry O. A.B., M.D. Dartmouth

Medical School 1898. Member, Staff, Wentworth Hospital. Address: Dover, New Hampshire. Their subject is "Iopax in the Diagnosis of the Diseases of the Genito-urinary Tract." Page 220.

COTTON, FREDERIC J. A.B., A.M., M.D. Harvard University Medical School 1894. F.A.C.S. Senior Surgeon-in-Chief, Boston City Hospital until July, 1931. His subject is "Osteomyelitis." Page 224. Address: 520 Commonwealth Avenue, Boston.

MYERSON, ABRAHAM. M.D. Tufts College Medical School 1908. Professor of Neurology, Tufts College Medical School. Visiting Neurologist, Boston City Hospital. Director of Research, Boston State Hospital. Consultant Neurologist, Beth Israel and Boston Psychopathic Hospitals. Psychiatrist, Department of Mental Diseases, Commonwealth of Massachusetts, Division for the Examination of Prisoners. His subject is "Progress in Neurology." Page 228. Address: 270 Commonwealth Avenue, Boston.

THE BOSTON MEDICAL LIBRARY

JOSEPH PRIESTLEY, F.R.S., LL.D.
1733-1803

MEDICINE owes much to men of science who have never been physicians and the one who is the subject of this sketch is of particular interest to the American profession for two reasons aside from the contributions he made of value to scientific medicine. The first is that though an Englishman, who did his work in Great Britain, he was a "prophet not without honor save in his own country" and found it expedient to forsake home and kindred to emigrate to America where he died, and the second, that it was largely the influence of Benjamin Franklin that induced him to devote his abilities to the studies that have made him world renowned.

Joseph Priestley was born in Fieldhead, near Leeds, England, on March 13, 1733. His parents were industrious, middle-class English, his father, a dresser of woolen cloth; his mother the daughter of a farmer. He was the oldest of six children and when he was seven years of age his mother died, and he was taken to live with a maternal uncle in order to relieve the burden upon his father. Later he was put in a school near his home but an aunt on his father's side having taken a fancy to him persuaded him to come and live with her, she being childless. Shortly after, this lady's husband, a man of considerable property, died and Priestley's aunt was glad to have him remain with her, which he did until his academic career began. Urged by this aunt he prepared for the Christian ministry. He was not robust and his course of study was suspended as it was feared he would not be able to apply himself to the rigorous discipline that was before him and for a while he went into trade, in preparation for which he found it would be advantageous to have command of certain foreign languages. Having facility in their acquisition, he soon mastered French, Italian and Dutch. His health improved to such an extent that he determined to go back to his first love, the ministry. In this interval, when he was engaged in trade, becoming interested in mathematics and the sciences he studied them quite industriously. On the resumption of his studies at Dr. Ashworth's Academy in Daventry he had made such progress in these subjects that he was able to be excused from a good part of the regular work of the first and second years. He remained at the Academy for 3 years, from 1752-1755. He acquired a rather lucid style of writing, learned how to make notes and mastered a system of shorthand. He also became imbued with some rather liberal, philosophical ideas which later were destined to cause him a good deal of trouble when he began his ministry. He became less and less orthodox and in these times would perhaps best be described as a Unitarian in his religious beliefs. He suffered from another and if anything a more serious handicap. He began to manifest the family trait of stammering. His efforts to establish himself in a parish were not very successful. His liberal views and his impediment of speech did not tend to make him popular and in the space of about ten years he completed his ministerial experience. During this time it had been necessary for him to supplement his salary as a preacher by giving private instruction in the languages and science. He also found himself a wife who proved a great helpmeet to him. While in his parish at Warrington he delivered a course of lectures on anatomy in the preparation for which he found it advantageous to go up to London occasionally to pick up new ideas and make new acquaintances. It was on these visits that he met Dr. Benjamin Franklin. At his own suggestion, but encouraged by Dr. Franklin, he wrote a history of electricity. For this and the work he did in getting out a chart of biography he was awarded an LL.D. degree from the University of Edinburgh and the Royal Society enrolled him as a Fellow. Six years of his ministry were spent very happily at the Mill Hill Chapel in Leeds. One would not expect that any harm could come from a clergyman's living alongside a brewery but it is interesting to consider how much good came from this circumstance, for it

was in consequence of such a situation that Priestley was led to observe the generation of carbonic acid gas which opened the way for his subsequent contributions to the scientific knowledge of gases and their behavior. It was in this house that he made his first experiments and in this town that he received considerable encouragement from Dr. Hey, a surgeon, who seems to have been the only person in Leeds who took any interest in what he was doing. Priestley's family had increased, whereas his salary had not, and he was forced to seek a more fruitful source of income. This was opened to him through an opportunity to become librarian for Lord Shelburne who was later the Marquis of Lansdowne. From him he received 250 pounds per annum and a house to live in. This position also afforded him considerable free time for his experimental work and opportunity for travel with the Earl. He remained in this position for seven years and left the Earl's service when he was 42 years of age. It was while working in the laboratory which the Earl had provided for him at Calne that he demonstrated the existence of oxygen as a gas. Its discovery had been foreshadowed by the studies of another Englishman, John Mayow, some time before but it was left to Priestley to furnish positive proof. Priestley first called it "vital air" and completed the evidence of its existence on August 1, 1774. He first collected his gases over mercury, using a sun glass to provide the heat for decomposition of the materials from which he extracted the gas. He discovered that a candle burned more luminously in this gas and that a mouse confined in a glass jar, into which a measured quantity of gas had been introduced, lived twice as long as a mouse would ordinarily live in a similar jar in which no "vital air" had been put. Furthermore when the mouse was removed, though apparently dead, it revived and seemed as well as ever. Much was left to be learned about the other gaseous components of the air but this discovery alone was enough to secure for him a lasting fame. He made further contributions, notably upon the interchange of gases which take place between animals and plants, leading him to argue that plants were purifiers of the air and helped to maintain an equilibrium between the animal and vegetable kingdoms. He also made certain studies upon vision, colors and the nature of electricity. He did not forsake his original interests, for he continued to write upon theological subjects and after seven years with Lord Shelburne he tired of a relationship which was originally entered into for financial reasons chiefly and returned to London in 1778. Here he found many friends whom it was advantageous for him to know, viz., Drs. Fothergill and Heberden, Mr. and Mrs. Lindsay and Mr. Wedgewood. He was again able to renew his acquaintance with Benjamin Franklin with whom he spent the last day of the latter's stay in England. In 1780 he settled in Birmingham where he joined the Rev. Mr. Blyth in the conduct of a free congregation. This was very agreeable to him, for it gave him opportunity to carry on his experimental work in science and brought him in contact with Erasmus Darwin, Withering and James Watt, the inventor of the steam engine. In 1789 the Dissenters became unpopular with the English Court and Priestley was made the victim of the animosity generated between the established church and the Dissenters. He was denounced from one of the pulpits in Birmingham and feeling ran so high that on the anniversary of the French Revolution (July 4, 1791) during a celebration of that event, a mob burned Priestley's church, his dwelling house with all its valuable library and apparatus and probably would have killed him had he been at home. He made his escape to London. He was offered a church in Hackney which offer he accepted and also a professional position in New College. He was boycotted by the Royal Society and was compelled to withdraw from membership. Even his family was made to suffer on his account. His eldest son was forced out of a business partnership in Manchester because of him. There seemed no way out of these difficulties and finally his sons thought best to quit the country. They found a place for their father in America, in the town of Northumberland at the head waters of the Susquehanna River and for this place he sailed on April 8, 1794, practically an exile from his own country. He was then in his sixty-second year. He passed through Philadelphia on the way to his new home and was honored by the American Philosophical Society which knew of his contributions to Science. He was offered the professorship in Chemistry at the University of Philadelphia. From that time on he lived a quiet life, busied with his laboratory and his theological studies and surrounded by his family with whom he had leisure to enjoy the beautiful natural environs of the place in which he lived. Early in 1803 he began to fail, physically, finding it necessary to abandon some of the work he had been in the habit of doing. The latter part of January, 1803, he had a slight shock and on the sixth of February he quietly passed out of this life having, within a few hours of his death, finished corrections upon some work he had been doing. His experience was probably a repetition, if we only knew it, of the experiences of many others whose ideals and convictions unfitted them for life in many European countries where unrest generated by the French Revolution had upset the social relations of nations and individuals.

MASSACHUSETTS LEGISLATIVE NOTES

SENATE 132—An Act penalizing Certain Experiments and Operations on Live Dogs.

Chapter two hundred and seventy-two of the General Laws is hereby amended by inserting after section eighty B, inserted by section one of chapter three hundred and forty-seven of the acts of nineteen hundred and twenty-eight, the following new section:—

SECTION 80C. Whoever experiments or operates in any manner whatsoever upon a live dog for any purpose other than the healing or curing of such dog shall, except as provided in section eighty A, be punished by a fine of not less than one hundred nor more than five hundred dollars, or by imprisonment for not less than three months nor more than one year, or by both.

SENATE 201—An Act making Vaccination Voluntary.

SECTION 1. No person shall be required to submit to any form of vaccination or inoculation as a condition precedent to admission to any school, institution of learning or public institution, nor to the exercise of any right, performance of any duty, or enjoyment of any privilege.

SECTION 2. Section fifteen of chapter seventy-six and sections one hundred and eighty-one to one hundred and eighty-three, inclusive of chapter one hundred and eleven of the General Laws and all acts in amendment thereof and in addition thereto are hereby repealed.

SENATE 230—An Act relative to Practice and Procedure under the Workmen's Compensation Law.

Whereas, The deferred operation of this act would, in part, defeat its purpose, therefore it is declared to be an emergency law, necessary for the immediate preservation of the public convenience.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Section twelve of chapter one hundred and fifty-two of the General Laws, as amended by chapter two hundred and forty-six of the acts of nineteen hundred and twenty-nine, is hereby further amended by inserting after the word "record" appearing in the first line of the new paragraph incorporated therein by the said amendment, the words:—an agreement of the parties or,—so that the said paragraph added by chapter two hundred and forty-six of the acts of nineteen hundred and twenty-nine shall read as follows:—When in any case before the board there appears of record an agreement of the parties or a finding that the employee is entitled to compensation, no subsequent finding by the board or by a member thereof discontinuing compensation on the ground that the employee's incapacity has ceased shall be considered final as a matter of fact or res judicata as a matter of law, and such employee or his dependents, in the event of his death, may have further hearings as to whether his incapacity or death is or was the result of the injuries for which he received compensation; provided, that if the board shall determine that the petition for such rehearing is without merit and frivolous, the employee or his dependents shall not thereafter be entitled to file any subsequent petition therefor except for cause shown and in the discretion of the member to whom such subsequent petition may be referred, and that in the event of the death of the employee, such a petition for a rehearing shall be filed within three months from the time of his decease and within one year from the date of the finding terminating his compensation.

HOUSE 617—An Act to provide for the Establishment of a Board of Automobile Personal Injury Medical Examiners.

There is hereby established an impartial board of automobile personal injury medical examiners to serve in the department of public works under the jurisdiction of the registrar of motor vehicles. Such board shall consist of members appointed by the governor, with the approval of the council, for terms of five years each. Said board shall examine all persons who claim to have sustained injuries as a result of being involved in an automobile accident and shall examine such persons upon request within five days after such accident. Such board upon such examination shall determine the nature and extent of the alleged injury and shall make report thereon to the registrar. No suit shall be brought on any claim for damages so sustained as a result of any automobile accident and no claim shall be paid to any person for any such alleged injury so sustained by any insurance company, unless the person claiming such injuries has first submitted to a physical examination as herein provided. The report of a member of said board or physician employed by said board shall be admissible as evidence in any action for personal injuries.

HOUSE 679—An Act to require the Department of Public Health to maintain Medical and Health Clinics at Beach Resorts.

Chapter one hundred and eleven of the General Laws is hereby amended by inserting after section fifty-seven the following new section:—

SECTION 57A. The department shall establish and maintain in cities and towns in which there exists a large beach resort, proper medical and health clinics in addition to such clinics maintained therein under the provisions of the preceding sections.

HOUSE 682—An Act relative to the Sale of Drugs and Medicines.

Section thirty-five of chapter one hundred and twelve of the General Laws is hereby amended by adding after the word "medicines" in the eighth line thereof the words:—provided those intended for internal use do not contain salicylic acid, barbituric acid, acetanilid, phenol bromine, iodine, their salts

or derivates,—so that said section as amended shall read as follows:—*Section 35.* Sections thirty and thirty-seven to forty-one, inclusive, of this chapter, sections one hundred and six of chapter one hundred and thirty-eight and section two of chapter two hundred and seventy shall not apply to physicians who put up their own prescriptions or dispense medicines to their patients; nor to the sale of drugs, medicine, chemicals or poisons by wholesale dealers or manufacturing chemists to retail dealers; nor to the manufacture or sale of patent and proprietary medicines, provided those intended for internal use do not contain salicylic acid, barbituric acid, acetanilid, phenol bromine, iodine, their salts or derivatives.

HOUSE 740 provides that "Grade A Massachusetts Milk" shall consist exclusively of milk produced within the commonwealth from cows that have been tuberculin tested and found free from bovine tuberculosis, and further that it shall be so cooled and cared for that in its raw state the bacteria count shall not be more than one hundred thousand per cubic centimeter and when pasteurized contain not more than twenty-five thousand bacteria per cubic centimeter. The bill also contains other provisions for milk distribution.

HOUSE 755 provides that counties may be authorized to borrow money for the use of county tuberculosis hospitals.

MISCELLANY

A RADIO MESSAGE PREPARED AND SPONSORED BY THE COMMITTEE ON PUBLIC EDUCATION OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE DEPARTMENT OF PUBLIC HEALTH

Health in the Coming Year*

On the afternoon before Christmas one is likely to be more interested in health during the next few days than in health during the coming year, if one is interested in health at all. There is the wonder as to who has been forgotten and the hope that, for whoever it is, the extra necktie will do. The fatigue from last minute irrational buying, although we were urged to begin almost before Thanksgiving, is exceeded only by the fatigue of those that must serve us at that last minute irrational buying. May they have a blessed Christmas and strength to bear up under the Christmas swapping that is just ahead. Then the stockings, and trees, and strings of lights that won't work are on us. The bright anticipatory eyes of children may ere long be dimmed by stomachs stuffed with sweets. The fragrance of greens raise such poignant portraits from the past. In spite of confusion, each must feel something akin to gratitude for the season's imagery of things that are and the presence of others that have been.

All this and so much more is Christmas, and to be spared an acute attack of this or that is about our only interest in health. But there is another reason why this subject should not be expected to hold our attention just now. It is human nature that, when we or ours are sick, we are most interested in health. When we haven't it, we crave it as cool water on the desert. The pedestrian covets the automobile. The owner groans garrulously about its nuisances. Just now there is relatively little sickness. We have come out of the minor annual disease peak of November, and ahead is the major peak around March. For most of us, then, sickness is not close to us and health is therefore not acutely prized.

But what of the next year? New Year's is but a week away and with it the at least passing urge to gaze into the crystal of the next twelve months. What of its economics, its chances of wars, its hopes of peace, its political legerdemains. It has been said that God in his mercy hides the future from us. We realize that and yet we'd like to know. What of our own personal vicissitudes, our ups and downs? Yet all ups are downs, all wars are lost, all peace is vain, unless we and others have physical, mental and moral well-being which is health.

To predict the health of the coming year, let us review that just passed. More public attention was given to infantile paralysis than to any other disease this summer. It visited as not before for fifteen years, and it may well be another interval before it comes in such numbers again. The present little ones will have grown largely beyond its reach. As it was handled more adequately this year than formerly, so in the interval new resources may be expected for those yet to come. Typhoid, that index of our public sanitation, reached a new low level as did diphtheria for the year. This fall scarlet fever and mumps have been above normal, while tuberculosis, pneumonia, measles and chicken pox were somewhat low. Whooping cough, meningitis and German measles are about what we would expect at this time of year. The chronic diseases of maturity are being studied as never before. Any improvement will be slow and must be based on informed public opinion so that each of us will feel as regards health that he is not so much his brother's keeper as his own.

What then of health for the next year? Will it be an influenza winter? That depends on many things, most of them unknown. But as to the phobia of influenza, that depends largely on how much the newspapers here and elsewhere talk about it. In any case, during the months just ahead, if you get a cold or grippe or what you will, feel all washed out and have a temperature, go to bed at once at home and stay there till a doctor tells you to arise and again shine. The cold won't kill you, the complicating pneumonia may. Chilling early in the disease invites such pneumonia.

*Broadcast December 24, 1931, Station WBZA, Hotel Bradford, Boston. Although broadcast at the Christmas season the Health features are applicable to the problems of the entire year.

From some parts of the country come suggestions that while we have of late years known a very low prevalence of diphtheria and mild though widespread scarlet fever, we may expect an increase in frequency of the former and an increased severity of both. Since both diseases kill largely the infants and preschool children, immunization against diphtheria should be used by the end of the first year, and young children particularly should be protected against exposure to scarlet fever and carefully nursed to avoid chilling if they get it.

As to infantile paralysis, we will presumably not hear much of it next summer unless our alarm of this year carries over so that, as one health officer said, in his town one case constituted an epidemic. If this is the case we must look to mental hygiene for relief. Certainly there will be some cases, as there always are, but presumably the numbers will be around normal.

As to chronic disease, will the lavish resources against cancer available in Massachusetts begin to make themselves felt? We hardly dare to hope. Will insulin save more of our diabetics; liver our pernicious anemias? Will more heart disease be arrested early and the cases saved from untimely deaths; will more rheumatics be spared the monotony and pain of progressive incapacity? That depends upon the intelligence of all of us adults in seeking competent medical advice early when at most the horse's nose is out of the barn and the whole miserable animal hasn't been stolen.

What sickness there is will, with economic distress, tax the resources of our hospitals and relief agencies as never before. They must be kept open to capacity and function even better than ever. That means wide public support from all of us, that the scourge of ill health may be mitigated.

CORRESPONDENCE

ANOTHER GRADUATE COURSE IN LOBAR PNEUMONIA

The Commonwealth of Massachusetts
Department of Public Health
State House, Boston

January 27, 1932.

Editor, *New England Journal of Medicine,*

Following the one-day graduate course in lobar pneumonia last October, we have heard a number of comments over the State that many men would have attended the course had they known that it was being given. For this reason I am writing you thus early that the Harvard Graduate School is contemplating another similar one-day course on Wednesday, March 2. Speakers will include Drs. Locke, Lord, Nye, Smillie and Churchill, and such subjects as serum and non-specific therapy, type determination, diagnosis, treatment of surgical complications, and epidemiology will be presented.

The Graduate School will place announcements in the *Journal* giving details of the course some ten days or two weeks in advance but I would appreciate your giving as much prominence as possible to this now in order that the number disappointed by not attending may be thereby reduced.

Yours truly,

GEORGE H. BIGELOW, M.D.,
Commissioner of Public Health.

A REACTION TO AN APPEAL TO THE BOSTON MEDICAL LIBRARY

January 28, 1932.

To the Editor, *New England Journal of Medicine,*

Some time ago the Boston Medical Library appealed to the Medical Society for funds. They came into Worcester and through Dr. A. W. Marsh as chairman a considerable sum was raised for the library. I not only contributed my bit ($50.00) but as a member of Dr. Marsh's team solicited practically $200.00 more.

I was considerably disappointed to receive the enclosed reply when I wrote to the Library for the first time for help. It seems to me that this should be given some publicity. If you agree with me please publish this communication.

Yours truly,

ROY J. WARD, M.D.

January 28, 1932.

Dr. Roy Joslyn Ward,
8 Bellevue Street,
Worcester, Mass.

My dear Dr. Ward:

We shall be pleased to help you with your references for your paper. There are two ways by which you can use the library:

1. For non-members of the Library we charge $1.50 per hour to compile the bibliography.
2. You can come to the Library and we will be glad to show you how to gather the material and it can be consulted here.

According to the rules of the Library, books are not loaned to non-members.

Yours very truly,

BLAKE BEEM.

EDITORIAL NOTE:

Any request for books from the Boston Medical Library will be honored through a local medical or municipal library if the applicant is not a member of the Boston Medical Library.

If it is more convenient the *Journal* staff will be pleased to assist any member of the Massachusetts Medical Society in having books sent to a local library or in looking up references.

KYPHOSIS WITH WEAKNESS OF THE LEGS

Editor, *New England Journal of Medicine,*

The article in your issue of January 14, by Henry R. Viets and Milton Henry Clifford prompts this report.

Mr. E. H., farmer, aged 29, married, was seen

January 4, 1928. He had noted weakness of the legs ten months before. This had slowly become worse, exacerbations seemingly partially related to exertion. For about two months he had been bedfast.

Examination showed almost total paralysis of the legs, associated with increased reflexes but without loss of sphincter control. There was a very sharp thoracic kyphos. Further questioning traced the hump to a fall on the back in infancy. Beginning deformity was noted soon after, but it had produced no discomfort and had been untreated. The comedy relief was furnished by the fact that he had been under the care of an osteopath, who had made a diagnosis of tabes.

The patient was referred to the hospital at Ohio State University for orthopedic treatment. A plaster jacket was applied after extension and later he was fitted with a steel brace. The functional result was somewhat slow but very gratifying. Within a year he was able to resume his farm work and he has worked steadily ever since. His health is excellent.

Philosophers may find a moral in a recent motor accident. Mr. H. was pinned beneath the overturned car, its weight lying across his chest. He would inevitably have been killed had it not been for the stout steel case in which his body was encased. This bore the pressure and he was simply forced down into the soft ground, escaping without injury.

MARK HOUSTON.

Urbana, Ohio.

ARTICLES ACCEPTED BY THE AMERICAN MEDICAL ASSOCIATION COUNCIL ON PHARMACY AND CHEMISTRY

535 North Dearborn Street, Chicago,
January 29, 1932.

Managing Editor, the *New England Journal of Medicine*,

In addition to the articles enumerated in our letter of December 24, 1931, the following have been accepted:

Abbott Laboratories
- Ampoules Potassium Bismuth Tartrate—D.R.L., 2 cc.

Ciba Co., Inc.
- Sugar Coated Tablets Lipoiodine—Ciba, 0.3 Gm.

Cutter Laboratory
- Diphtheria Toxin for the Schick Test, 10 test doses
- Tuberculin B. F. (Bovine)
- Typhoid Vaccine, 20 cc. vial

Gane & Ingram, Inc.
- Phenobarbital Sodium—Gane and Ingram
- Tablets Phenobarbital Sodium—Gane and Ingram, 1½ grains

Gilliland Laboratories, Inc.
- Scarlet Fever Streptococcus Antitoxin (Refined Concentrated)

Lederle Laboratories, Inc.
- Brucella Melitensis Vaccine—Lederle
- Normal Horse Serum (1:10 Dilution) for the Conjunctival Test

Eli Lilly & Co.
- Diphtheria Toxin for Schick Test, Diluted Ready for Use—Lilly

Mead Johnson & Co.
- Mead's Powdered Brewer's Yeast Tablets

United States Standard Products Company
- Antimeningococcic Serum Polyvalent

Winthrop Chemical Co., Inc.
- Sterile Solution Skiodan (40% by volume)

Nonproprietary Articles
- Brucella Melitensis Vaccine
- Phenobarbital Sodium

Yours truly,

W. A. PUCKNER, *Secretary*.
Council on Pharmacy and Chemistry.

RECENT DEATHS

GLOVER—DR. EUGENE CHELLIS GLOVER died suddenly on January 22, 1932, at the Thorndike Memorial Laboratory, Boston City Hospital.

Dr. Glover was born at Gorham, Maine, December 23, 1903, the son of Leon G. Glover. Entering Harvard, he was graduated with the degree of A.B. *summa cum laude* in 1924 and of M.D. *cum laude* in 1928. While in college he was elected to Phi Beta Kappa and in the medical school to Alpha Omega Alpha. In passing the National Board Examinations he twice stood at the head of the list of successful candidates. Following an appointment as Research Fellow at the Thorndike Memorial Laboratory, he was an interne on the Fourth Medical Service, Boston City Hospital, from February 1929 to July 1930. He was then granted a Graduate Fellowship by the Commission for Relief in Belgium Education Foundation and studied from September, 1930, to August, 1931, under Dr. Maisin at the University of Louvain, Louvain, Belgium, on problems associated with the etiology and treatment of malignant disease. Following his return to this country, he was appointed Assistant Physician, Thorndike Memorial Laboratory and Assistant in Medicine, Department of Medicine, Harvard Medical School. He was also on the staff of the Pondville Hospital. Primarily interested in cancer, his investigative work and publications were chiefly concerned with this topic. He was only recently married to Edith Colby of Cambridge, who survives.

FAY—DR. WILLIAM EASTMAN FAY. The death notice of Dr. Fay was reported in our *Journal* of January 21, page 146. The following additional facts have been forwarded to us for publication: After graduating from the University of Minnesota and the Harvard Medical School, he was made Executive Assistant at the Boston City Hospital and later served on the staffs of the Boston Dispensary,

the Carney Hospital and the Floating Hospital for Children.

For over forty years he engaged in a general and family practice in Boston to which he remained devoted until the swift collapse of his health in 1930.

He was full of appreciation of the high qualities and of the friendliness of the medical profession about him.

After a brief residence in Melrose, Massachusetts, he recently removed to California. Death followed progressive muscular atrophy.

BEDARD—Dr. J. Armand Bedard, former Health Commissioner of Lynn, died January 26, 1932, at his home in that city. He was born in 1867, graduated at Laval University, Quebec, 1890, and joined the Massachusetts Medical Society the same year. Dr. Bedard had been very active in the affairs of the Essex South District Medical Society having served as a Councilor for several years.

He was a specialist in tuberculosis and his research along this line won him recognition. During the World War he was honored by appointment to the joint Rockefeller Commission and American Red Cross. During his service of more than a year he was promoted to the rank of major.

On his return to Lynn he was appointed attending physician at the Lynn Tuberculosis Sanitarium. Later he was appointed by the then Governor Coolidge to succeed the late Dr. Joseph C. Pinkham, medical examiner of that district.

A wife, a son, two daughters and two brothers survive him.

LANCASTER—Dr. Sherman Russell Lancaster, born in N. Newport, Maine, son of Ichabod R. and Mary Ellen (Ireland) Lancaster, died January 26, 1932. His premedical education was acquired at the Main Central Institute. He received his M.D. from the New York University Medical College in 1887, and joined the Massachusetts Medical Society in 1892.

CRAWFORD—Dr. Charles Henry Crawford died at Lawrence, Massachusetts, January 13, 1932. He was born at Lowell, Mass., in 1855, son of John and Elizabeth Crawford. His premedical education was acquired at Phillips Andover Academy and the University of Ottawa, Canada. His M.D. degree was conferred by Bellevue Medical College in 1882. He settled in Illinois, moved to California and later returned to Lawrence, Mass. He joined the Massachusetts Medical Society in 1882 but relinquished membership for several years until 1926 when he again became a member. His wife and two sons survive him.

CHAPIN—Dr. Clifford Samuel Chapin died at Great Barrington, January 26, aged 59. He was born at Bernardston, January 25, 1873, the son of Janette Hannah (Nelson) and Curtis Chapin. His premedical education was received at Bernardston and Powers Institute and the Williston Academy and his M.D. degree was conferred by Bellevue Hospital Medical College in 1896. He settled in Great Barrington in 1898. Dr. Chapin was a member of the Massachusetts Medical Society having joined in 1898 and had held the office of President of the Berkshire District Medical Society. He was also a member of the American Medical Association. He served on the staff of the Fairview Hospital and had been associate medical examiner of Berkshire County since 1904. Fraternally he was a Mason, a member of the Royal Arcanum and the Ancient Order of United Workmen. His religious affiliations were with the Congregational Church. He is survived by his wife Mary Redfield (Wight) and three sons.

A LATE REPORT

TOMPKINS—Dr. Byron Vincent Tompkins of Sheffield died May 13, 1926, age seventy-one years and six months. He joined the Massachusetts Medical Society in 1920.

McCARTHY—Dr. Eugene F. McCarthy died at his home at Cambridge, Massachusetts, January 29, 1932 in his fifty-seventh year. He was a graduate of Tufts College Medical School. Earlier in life he was a pharmacist. Besides his wife and daughter, he is survived by three brothers, William, James, and Charles, and one sister, Miss Susan.

NOTICES

GORGAS ESSAY CONTEST ANNOUNCED

Fourth Annual High School Essay Contest Deals with Mosquitoes

The fourth annual health essay contest for high school juniors and seniors, sponsored by the Gorgas Memorial Institute, Washington, D. C., will open in high schools on February 7, and close on March 15.

The subject of the contest is "Mosquitoes; Their Danger As a Menace to Health, and the Importance of Their Control." The donor of the prizes is Mr. Henry L. Doherty, President of the Henry L. Doherty Company, New York City, who has long been interested in this health problem.

High school winners will receive a handsome Gorgas medal, and will qualify for entrance in the State Contest. State winners will be awarded $10 in cash, and will qualify for entrance in the National Contest. Winner of first national prize will receive $500 in cash, and a travel allowance of $200 to Washington to receive the award; second national prize will be $150 in cash, and the third national prize $50 in cash.

Winner in each high school will be selected by a faculty committee appointed by the principal. The winning essay, with official entrance blank and photograph of winner, will be forwarded by the principal to the Gorgas Memorial for entry in the State

contest. A committee of three State officials will judge the winning high school papers and select the winner in each State. The winning State essays will then be entered in the National Contest, the judges of which will be the U. S. Commissioner of Education, the Surgeon General of the U. S. Public Health Service, and the Director General of the American College of Surgeons.

Twelve thousand students in 43 states participated in last year's Gorgas essay contest. The winner was Miss Helen Dale, San Diego, California. Second prize was awarded to William F. Bullock, of Brandon, Mississippi, and third award went to Miss Margaret E. Beal, of Hammonton, New Jersey.

For detailed announcement write the Gorgas Memorial Institute, 1331 G Street, N. W., Washington, D. C.

MEDICAL CLINIC AT THE PETER BENT BRIGHAM HOSPITAL

At 3:30 P. M., on Thursday, February 11, in the Amphitheatre of the Peter Bent Brigham Hospital, a medical clinic will be given by Dr. S. A. Levine, subject "Palpitation of the Heart", to which physicians are cordially invited. The clinics will be held regularly on Thursday afternoons.

THE EXAMINATION CONDUCTED BY THE AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

The next written examination of the American Board of Obstetrics and Gynecology will be held in nineteen different cities of the United States and Canada at 2 P. M., on Saturday, March 26, 1932. The general, oral and clinical examination will be held in New Orleans on Tuesday, May 10, 1932, immediately preceding the meeting of the American Medical Association. Reduced railroad fares will be available. For detailed information and application blanks apply to the Secretary, Dr. Paul Titus, 1015 Highland Building, Pittsburgh, Pennsylvania.

CHANGE OF DUTY AND STATION OF COMMISSIONED OFFICER OF THE UNITED STATES PUBLIC HEALTH SERVICE IN NEW ENGLAND

Consultant Philip Drinker has been directed to proceed from Boston, Mass., to Washington, D. C., and return, about February 9, in connection with field investigations of public health.

RADIO HEALTH MESSAGES

JANUARY-FEBRUARY-MARCH, 1932

Sponsored by the Public Education Committee of the Massachusetts Medical Society and the Massachusetts Department of Public Health.

Courtesy WBZA. Thursdays at 4:50 P. M.

February

11 Growing Strong Teeth
18 The Common Cold
25 Whooping Cough

March

3 The Psychology of the Crippled Child
10 Personal Rights vs. Public Safety
17 Electrical Hazards in the Home
24 Can High Blood Pressure Be Avoided?
31 Rose Cold and Hay Fever

STATE HOUSE BROADCAST

Sponsored by the Massachusetts Department of Public Health.

Courtesy WEEI. Fridays at 12:30 P. M.

Health matters of public interest discussed by the Division Directors of the Department.

RADIO HEALTH FORUM

Queries from the public are answered under the sponsorship of the Department of Public Health.

Courtesy WEEI. Fridays at 4:50 P. M.

Questions on Health and Prevention of Disease may be sent to: Radio Health Forum, State Department of Public Health, State House, Boston.

REPORTS AND NOTICES OF MEETINGS

THE HARVARD MEDICAL SOCIETY

A regular meeting of the Harvard Medical Society was held at the Peter Bent Brigham Hospital on January 12, 1932. Dr. Harvey Cushing presided.

The medical case was presented by Dr. Eugene Eppinger. A forty-one-year-old American housewife came to the hospital because of polydipsia, polyuria, weakness and weight loss of six months' duration. Pruritus had been present for six weeks. She had also noticed a swelling in the left side of her neck which had been increasing slowly in size for six months. Physical examination was essentially negative except for the tumor which is five by three centimeters in size, and moves with swallowing. There is no clinical evidence of hyperthyroidism. The basal metabolic rate is plus eleven and the fasting blood sugar is 276 milligrams per cent. The diagnosis is diabetes mellitus and adenoma of the thyroid gland. She has responded adequately to diet and insulin therapy and the adenoma will be removed at a later date.

The surgical case was presented by Dr. Jean Du Mortier. A thirty-eight-year-old man was admitted to the hospital for removal of a tumor of the lung. He was first seen in the Out Door Department nine months ago. At that time he complained of progressive pain, stiffness, and limitation of motion in all his joints. He was found to have severe atrophic arthritis. In addition clubbing of the fingers was noted and x-ray examination showed a tumor six by eight centimeters in the right lung field. He refused to enter the hospital. Five months later the tumor had increased to eight by ten centimeters and he again refused treatment. Three months ago he developed a cough and a small amount of blood-

tinged sputum. The tumor is now nine by eleven centimeters and he has entered the hospital for treatment. It was not possible to tell whether the tumor was in the lung proper or was attached to the thoracic wall. Hence, artificial pneumothorax was created and subsequent x-ray examination has shown that the tumor is within the parenchyma of the lung and unattached to the chest wall. Dr. Harlan Newton plans to operate upon the patient and to remove the tumor if possible.

Dr. William F. Rienhoff, Jr., of the Surgical Department of Johns Hopkins Medical School, spoke on "Some Experimental Observations on the Thyroid Gland." The usual teaching is that the thyroid gland is composed of a number of lobes and lobules separated by fibrous tissue septa. Dr. Rienhoff has shown that this view is incorrect. If the thyroid gland is treated with a mixture of glacial acetic acid, chloral hydrate, and glycerin and then digested with five per cent. hydrochloric acid, all the large fibrous tissue septa are dissolved. The parenchyma is then found to consist of many interlacing bands and bars of glandular tissue all connected to each other and there are no true lobulations. The parenchyma is composed of myriads of follicles separated by a delicate connective tissue stroma which can be destroyed by digestion in fifty per cent. hydrochloric acid. It is then possible to dissect out the individual follicles under the dissecting microscope and to study them. The follicles of the normal gland are roughly spherical but vary somewhat in size and shape. The external surface is smooth and the wall is thin. If the dome of a follicle is cut off, the inside is found to be smooth. The follicles of a hypertrophied gland are of a larger size, vary more in size and shape, are smooth on the outside but are thick-walled. When the inside is viewed, it is found to be filled with many finger-like projections, the papillomatous folds seen in ordinary microscopic preparations. The circulation of individual follicles has been studied by injection of the capillaries and lymphatics of the thyroid of dogs. There is a very intimate capillary plexus surrounding each follicle, while the lymphatic channels are relatively large and have few branches or tributaries in intimate relation to the follicles. Hence, it is very probable that thyroid secretion exudes through the capillaries rather than the lymphatics.

In order to study the effect of iodine on hyperplastic thyroid tissue Dr. Reinhoff has biopsied the gland before the beginning of treatment and compared the histologic appearance with that of the same gland removed after iodine involution. The hyperplastic gland is engorged with blood, the capillaries are dilated, the follicles are small and have high cylindrical epithelium thrown up into folds, and there is little colloid present. The iodinized gland is pale and firm, the capillaries are small and empty, the follicles are large, the epithelium is flat and smooth, and there is much colloid present. Dr. Rienhoff believes that iodine causes an increased formation of colloid which mechanically dilates the follicle and compresses the perifollicular capillaries.

Coincidently with the histologic changes the patient is clinically improved, the pulse becomes slower and the basal metabolic rate falls.

The paper was discussed by Dr. Walter B. Cannon and Dr. Frank Lahey.

ESSEX NORTH DISTRICT MEDICAL SOCIETY

The Ninety-first Semi-Annual Meeting of the Essex North District Medical Society was held at the Kenoza Country Club, Haverhill, on Wednesday, January 13, 1932. Sixty-five members were present.

After the dinner the president, Dr. H. H. Nevers, of Lawrence, introduced Dr. Bigelow, the Massachusetts Commissioner of Public Health. Dr. Bigelow began in a rambling and at times facetious way to outline the early development of public health in the field of control of the environment and enumerated the Health Department's present responsibilities in this regard. He pointed out that here there were few, if any, conflicts with practitioners.

The second field was that of communicable disease control where the province of the health officer was pretty well recognized by physicians, but nevertheless there were some opportunities for difference of opinion. He gave illustrations in the field of diagnosis, active immunization, the new pneumonia program, and the infantile paralysis service. He reported that of 256 physicians replying to the question as to whether service in infantile paralysis should be given again essentially as it was last summer, 251 answered in the affirmative. He said he had hoped that some method might be worked out whereby the local medical profession would designate a physician through whom serum might be distributed though any such plan had obvious difficulties.

The third, newest, and most difficult field was that of non-communicable disease control or personal hygiene. Here, because of the incompleteness of our knowledge, the imperfections of technique, and the overlapping into what has long been generally accepted as the province of private practice, more differences of opinion and confusion existed. He illustrated those differences in the field of prenatal care, well child and school hygiene, and the whole great field of chronic disease, as indicated by the cancer program.

The substance of his ideas as to the proper line of development of future services by health departments he summarized by the statement that they should supplement, but not supplant, the general practitioner of medicine.

Owing to the demands of the Fitchburg smallpox situation, he was forced to leave after Dr. Merrill's discussion without being able to hear the other animated discussion which followed.

Dr. Merrill of Lawrence opened the discussion and called attention to the bill which has been introduced recently providing for a complete domination of medical practice by a new Department displacing Health, Mental Disease and Public Welfare.

Dr. Burnham, of Lawrence, very greatly regretted

the fact that here were sixty-five doctors to tell the Commissioner what he ought to do, and he could not wait to hear it. He said there were certain very definite functions for the Department of Public Health, and hoped that there would not be encroachment in the field properly belonging to and better fulfilled by the general practitioner. He stressed the fact that it was surprising to him to find how many of the new men in the Department of Public Health have no relation to the State Medical Society, regretting that there was not the opportunity for these men to mix with the profession in their deliberations and assimilate their points of view.

Dr. Durant, of Haverhill, forcefully expressed his position as an individualist, and expressed the fear that the excellent work of the State Department of Health might be carried beyond the danger point into State Medicine, and hoped that the medical profession would exert its power and influence to regulate these tendencies.

Dr. Nettle, of Haverhill, took exception to some of the methods employed at the cancer clinics, notably that the advertisements in the newspapers might be interpreted to the effect that if one wanted proper diagnosis of possible cancer he must go to these clinics.

Dr. Sweetser, of Merrimack, expressed himself as disappointed that there were not more fireworks, as he had anticipated that the Commissioner was going to define his program a little more fully. He said he expected industrial sick insurance, unemployment insurance and compulsory burial insurance to follow along with other social legislation already on the books.

Dr. Burnham, replying to Dr. Nettle's criticism of cancer clinics, said that the newspaper advertising had been discontinued, and that if there was anything unethical in the management of the Lawrence Clinic he would have nothing further to do with it, but he did not know that there was anything that was now being done that could be omitted without detriment to the success of the clinic.

The Secretary expressed regret that Dr. Bigelow had not spent more time on present and particularly on future relationship with the profession. He said he doubted whether there was any support in the Department or in the profession for the House Bill which gave the Department complete jurisdiction over the profession. He stressed the value of discussion in these matters, and the value of the Public Relations Committee as advocated at the previous meeting by the president of the New York State Medical Society, Dr. Ross. He called attention to the fact that the British Medical Association prior to the passage of its Industrial Insurance Act had gone on record as absolutely opposed to it, and unwilling to coöperate, but that after the Act was put through it got under cover, and after ten years of operation the organized medical association was doing the major part of the professional administering of the provisions in the act, and that there was much to indicate that the system was fairly satisfactory. He said that it was difficult at this distance to arrive at any satisfactory conclusions about the working of social insurance in foreign countries, owing to the animus which was obvious in some of the publications, but urged that the profession endeavor to keep itself informed about these matters and not drift along allowing matters to be settled by default. He urged that the profession bear in mind that if legislation comes it will be based on the greatest good to the greatest number, and not based on the interests of the medical profession primarily, and that too much discussion of a selfish nature in the profession would not enhance the reputation of the doctor.

Dr. Whitney, of Haverhill, said he hoped labor would be paid enough so that its members could afford to handle their own sickness burdens, but that if the tide continued to run toward State Medicine, the doctor would be as helpless as the independent grocer was against the chain store.

Dr. Mikolaitis, of Lawrence, spoke along the lines of the German system which has been in existence for nearly 100 years. He spoke of the abuse of public clinics, where doctors give free service, by people with evidences of being well able to afford to pay the private physician outside. He took exception to the Commissioner's use of the term "doc" and spoke of the high cost of medical education, and pleaded for the continuance of the art and practice of medicine in its best sense.

Dr. Edward Mack Smith, of Lawrence, spoke from the standpoint of the industrial surgeon. He pleaded for group treatment of patients suffering from the same diseases, stressing the popular demand and the advantage to both the individual and the physician to be derived from treating these groups together, the collective benefits being greater than the same time expended individually.

It was moved by Dr. Merrill, seconded by Dr. Burnham, and unanimously voted that the Society believed it to be to the advantage of the State Department of Public Health and the Department of Mental Diseases, the medical profession and the citizens of the state that all medical members of their staffs be members of the State Medical Society, and that the secretary be instructed to submit these resolutions to the appropriate departments.

The secretary presented the offer of the Birth Control League to provide a speaker on the subject of contraception, submitting to the Society the question of the propriety of sponsoring, as an organization, such a discourse. On motion of Dr. Merrill, seconded by Dr. Kelleher, the matter was laid on the table, the vote being unanimous.

Resolutions were submitted on the death of Dr. Abbott, of Andover. The president announced the death of Dr. Tiani, of Lawrence, Dr. Cahill, of Lawrence, and Dr. Shaw, of Newburyport, and appointed committees to draw up resolutions.

E. S. Bagnall, *Secretary.*

SOUTH END MEDICAL CLUB

Dr. Lyman Hoyt, Junior Associate in Medicine at the Peter Bent Brigham Hospital and Assistant in Medicine at the Harvard Medical School, lectured on "Oedema" at the meeting of the South End Medical Club held January 19 at the office of the Boston Tuberculosis Association. Dr. Hoyt said "Oedema is caused by heart disease, nephritis, hypothyroidism, malignancy and *congenital oedema*. Before treating oedema one must be reasonably certain of the cause. In most cases it is best to begin as if it were cardiac. Thorough digitalization is necessary carefully following the output and weight to see if the oedema decreases. The cause of oedema is not always obvious, that is albumin may appear in the urine where there is cardiac failure, but with digitalis this usually disappears. Renal oedema may be suspected when digitalis fails to relieve the situation. Deficient kidney function does not always produce oedema. There has been an alteration in the tissue and cell metabolism characterized by a change in the acid alkali ratio. One factor which is fairly certain about oedema is that sodium chloride in excess predisposes to the collection of fluid. The sodium radical has been found to be the offender. It has been found that increasing the acid salts, such as ammonium in the blood, will sometimes decrease oedema. Ammonium chloride has been tried for some time in dealing with the etiology of this condition, but ammonium nitrate has been found more efficacious. In cases of nephritis, nephrosis and oedema due to malignancy, ammonium nitrate given in adequate doses in some way changes the blood and tissue salts so that diuresis occurs."

NEW ENGLAND PHYSICAL THERAPY SOCIETY

The January meeting of the New England Physical Therapy Society was held at the Boston Square and Compass Club on Wednesday evening, January 20, 1932. Dr. William D. McFee presided.

A paper on Physical Therapy in the Treatment of Arthritis was presented by Dr. Loring Tiffany Swaim. The discussion was opened by Dr. Frederic Jay Cotton.

Invitations were accepted by the Society to meet with the Norfolk South District Medical Society and the Worcester District Medical Society, the dates of these meetings to be announced later.

ARTHUR H. RING, *Secretary.*

PLYMOUTH DISTRICT MEDICAL SOCIETY

The January meeting of the Plymouth District Medical Society was held at the Brockton Hospital on Thursday, January 21, 1932. The meeting was opened at 11:10 A. M. by President John J. McNamara. After the reading of the records by the Secretary, Dr. George A. Moore, a short business meeting was held. A letter was read from Dr. Halbert G. Stetson, President of the Massachusetts Medical Society and Chairman of the State and National Legislative Committee, calling attention to House 203 which pertains to Middlesex College asking to be allowed to establish a Dental Department in this College; also House 204 asking that the University of Massachusetts be allowed to confer degrees of B.S. on its students. Dr. Stetson stated that the committee was opposed to these two bills and wished Plymouth District Society to endorse the action of the Committee. Dr. Thomas H. McCarthy, Vice-President of the Massachusetts Medical Society and a very active member of the Plymouth District Society, moved that the Secretary be instructed in the name of 138 members of the Plymouth District Society to protest unanimously against the enactment of this legislation and to write President Stetson to that effect. His motion was duly carried. Dr. McCarthy also stated that he had personally seen Representative John J. Whalen who is a member of the Committee on Public Health and not only acquainted Representative Whalen with these two bills but also with the Chiropractic bill and had explained in detail to him what these bills would mean to the profession as a whole, if passed. He said that Representative Whalen had agreed to represent the Society in opposition to these bills. Treasurer Alfred C. Smith gave a very excellent report of the condition of the treasury. Dr. M. Frank Barrett presented a very appropriate and tender eulogy on the late Dr. John F. Callahan for the committee consisting of Dr. M. F. Barrett, Chairman, Dr. Thomas H. McCarthy and Dr. Charles G. Miles. It was voted to spread the eulogy on the records and to send a copy to the widow of the late Dr. Callahan. A letter was received from the widow of the late Dr. Wilfred Brown of Plymouth, thanking the Society for its communication and expression of tender sympathy. Dr. M. Frank Barrett, Chief Surgeon of the Brockton Hospital and Chairman of the Brockton Hospital Staff Committee, then invited the physicians to the surgical ward where a demonstration of the apparatus that is now being used by the Brockton Hospital in promoting the union of compound fractures was given by Dr. George E. Buckley. Dr. Buckley showed four cases now being treated by the use of this method. After this demonstration the members of the Society were invited to the medical ward of the Hospital.

The first speaker to be introduced was Dr. Charles D. McCann, chief obstetrician of the Brockton Hospital. Dr. McCann took for his subject the Aschheim-Zondek test for pregnancy and its clinical applications. Dr. McCann said that he was sorry he could not give a demonstration because morning urine has to be injected into a rabbit and they did not have any cases which were suitable for the demonstration that morning. Dr. McCann stated, however, that he would introduce Dr. Benjamin F. Bornstein who would talk to the society on the subject. Dr. Bornstein illustrated this test by taking for his subject a woman who had a hydatidiform mole removed and two months later began to bleed quite profusely. The Aschheim-Zondek test was strongly

positive indicating either that there was some mole tissue left or that degeneration into a chorio-epithelioma had occurred. A curettage was done and the report came back chorio-epithelioma. Dr. Bornstein explained the technic of the test as follows:

A female rabbit, which had previously been isolated for from ten to fourteen days and weighing about four pounds, is injected intravenously two consecutive mornings with 10 c.c. of urine, preferably with a morning voided specimen. The animal is laparotomized in 48 hours and the ovaries inspected for hemorrhagic follicles, which are indicative of a positive test. A positive reaction may often be obtained in 24 hours with only one injection of 10 c.c. of urine. However, there is the rare weakly positive case that may take longer than 24 hours for ovulation to occur, so unless the result is desired in as short a time as possible we ordinarily wait 48 hours before opening the rabbit, in order not to miss any of the weakly positive cases. The test is uniformly positive several days after a missed period and becomes negative as soon as the ovum or fetus is dead. When an abortion has occurred, the test becomes negative. It is strongly positive in cases of hydatidiform mole and chorio-epithelioma. After operation, the test is invaluable in the following up of these cases of chorio-epithelioma, because, if any metastases occur, the Aschheim-Zondek test will become positive again. This patient, who had the chorio-epithelioma, comes back every two months or so for follow-up Aschheim-Zondek tests. Dr. Bornstein was very thorough in his explanation of this test and was greeted with a great deal of enthusiasm. Dr. McCann and Dr. Bornstein also discussed uterography and showed x-ray plates with patent and occluded tubes. This demonstration was appreciated by all.

The next speaker was Dr. Loring B. Packard, x-ray specialist of the Brockton Hospital, who demonstrated a very rare case of peptic ulcer of the esophagus. These plates showed definitely where the ulcer was located. Dr. Packard was very thorough in his demonstration. He called upon Dr. John A. Noyes who was associated with the case. Dr. Noyes is a throat specialist connected with the Brockton Hospital. The last speaker to discuss this case was Dr. William G. Walker, Chief of the medical staff of the Brockton Hospital, who wrote the diagnostic report. Dr. Walker also demonstrated two cardiac cases; one of aortic regurgitation of luetic origin in which the woman had overcome her decompensation and was on the road to recovery although over 70 years of age. He also demonstrated a case of heart block, the patient being wheeled into the medical ward so that all could see him. He was a man 75 years of age. Dr. Walker stated that he had had these attacks of heart block ever since he was six years old.

The next speaker was Dr. Frederick F. Weiner, chief of the genito-urinary clinic, who took for his subject, Electrosurgery in Urology. Dr. Weiner demonstrated his cases by x-ray pictures and also by showing the patients. He gave a very thorough demonstration of his work in this type of case.

Dr. Frederick W. Murdock demonstrated a case of injury to the cornea of a young girl 16 years of age who had been in an automobile accident. A motorcycle collided with the automobile in which she was riding and a piece of glass from the windshield flew into her eye and cut the cornea through. Dr. Murdock said the cornea was cut similar to the way a razor would cut through. Dr. Murdock said that this eye was closed for days and instead of bandaging it he simply took a stitch in each lid and sutured the lids together so that they could not open. He said he felt that was much better than to bandage the eye or employ any other method. The patient was present and great improvement was evident. Dr. Murdock said that he thought the girl would have her sight back in due time.

Dr. John A. Noyes also demonstrated a very interesting eye case.

The demonstration period having ended, the members of the society adjourned to the banquet hall where a fine turkey dinner was served by the hospital staff. Before the dinner Dr. John J. McNamara, president of the Plymouth District Society, stated that he wanted to thank everybody for attending this wonderful demonstration which was given by the staff of the Brockton Hospital. He felt that it could not be surpassed by any hospital in the Commonwealth and said that the large attendance of physicians and surgeons from all over Bristol, Plymouth and Norfolk counties showed by their interest and close attention that they had enjoyed these first-class demonstrations. Dr. McNamara said that no words of his could adequately show appreciation of the work presented by the staff. A rising vote of thanks was unanimously expressed for this splendid instructive entertainment.

THE GREATER BOSTON MEDICAL SOCIETY AND THE BETH ISRAEL HOSPITAL

The regular meeting of the Greater Boston Medical Society and the Beth Israel Hospital was held at that hospital on the evening of January 5, 1932. Dr. William Dameshek presided.

Dr. B. M. Fried spoke on "Primary Chronic Splenomegaly." In previous generations splenomegaly was a common diagnosis but gradually the causes of splenic enlargement have been differentiated and they are usually found to be secondary. Reticuloendotheliosis, or Gaucher's and Pick-Niemann's diseases have been shown to be disturbances of the lipoid metabolism rather than primary diseases of the spleen. Banti's disease as described in 1882 is characterized clinically by three stages; the first by splenomegaly, the second, by anemia and enlargement of the liver, and the third by a small liver, jaundice and ascites. Pathologically there is a fibrosis of the splenic corpuscles, the sinuses are

empty and the lining cells show proliferation and swelling. There is now little doubt that this condition is a disease entity although a positive diagnosis is not possible clinically as all the symptoms and signs can be present in other diseases. Banti believed that this condition was a primary disorder of the spleen and this view is widely held today, although there is little evidence in its favor. Dr. Fried has recently had the opportunity to study carefully the pathologic material from a young girl dying of Banti's disease. The typical lesions were found in the spleen, thus establishing the diagnosis. In addition there was a marked phlebosclerosis of the splenic vein with changes in the wall similar to those found in arteriosclerosis. In studying the literature he has found other instances of this sclerotic process, which in some cases has gone on to complete occlusion of the vein. Dr. Fried suggests that this is the primary disturbance in Banti's disease and that the splenic fibrosis is secondary to chronic congestion. The phlebosclerosis could be on a syphilitic, traumatic or infectious basis. The last is the most probable. If this view is correct, Banti's disease should no longer be considered a primary disease of the spleen but should be classified as a secondary splenomegaly.

Dr. William D. Wheeler spoke on Physiotherapeutic Results in Dermatology. A generation ago the dermatologist used ointments, salves, and lotions. Internal medication has added little, although a few specific drugs have been discovered. Physiotherapy has opened new fields for the dermatologist. Artificial heliotherapy with infra-red or ultraviolet rays is the most frequently used agent. The former is used chiefly for the heat, the latter for the specific action of the rays. In using the carbon arc or quartz-mercury lamp, great care must be exercised as the dose varies with the individual and some patients are very sensitive to the rays. It should never be used in cases of lupus erythematosis as it aggravates the condition. Carbon dioxide snow had an extensive use a few years ago but has largely been replaced by x-ray and radium. However, it still is useful in the treatment of small angiomas, keratoses and warts. Radium and x-ray enable the dermatologist to remove small epitheliomata with an excellent cosmetic result, but should be used only by experts. Hydrotherapy with medicated waters is often palliative but never curative. High frequency current is the most promising agent at present. Dr. Wheeler has been especially interested in this field of work and has developed a method of treatment using unipolar current produced by glass vacuum tubes. This has proved very valuable in the treatment of epidermorphytosis of the vesiculopapular type. He is able to cause a prompt complete disappearance of the lesions and recurrences are very rare. In the generalized type the results are not so striking but there is marked improvement and amelioration of the symptoms.

Dr. David B. Stearns spoke on Transurethral Prostatotomy. Young in 1919 offered his punch operation as a method of treating median obstructing bars and inoperable obstructing carcinoma of the prostate. Since then several workers have advocated the use of the electrocautery in transurethral operations. In some cases they have gone further and advocated attacking the lateral lobes by this route. Dr. Stearns has been using the method for four years. He has operated upon twenty-four patients, in sixteen of whom he attacked the lateral as well as the median lobes. The results have been excellent as there have been no fatalities in the series and thus far there have been no recurrences of symptoms of obstruction. The procedure should be considered of major surgical importance and the preoperative preparation should be most thorough. Most patients are able to leave the hospital on the third day, a factor of considerable economic importance.

In the discussion it was brought out that this method is not used at either the Massachusetts General Hospital or the Beth Israel Hospital. Dr. Stearns' paper was illustrated by a motion picture showing the technic of the operation.

Dr. A. Colmes discussed "Serial Skin Tests in the Treatment of Hay Fever." The usual procedure in treating hay fever is to give twelve to fifteen injections of a commercial pollen extract. This is a very inaccurate method, severe reactions sometimes result, and often inadequate or too large doses are given. Dr. Colmes has made a practice of controlling the treatment by serial skin tests. The patient is tested with dilutions of 1-100, 1-500, and 1-5,000 of the extract. Treatment is started with that dilution which just gave a positive skin test. Subsequent doses are determined by the degree of local reactions following the previous injection. The skin tests are repeated at monthly intervals and when the skin reaction is absent or only slightly positive the treatment is discontinued. This plan has been followed in forty-four cases of hay fever and has proved very valuable.

WEBSTER MEDICAL CLUB

A regular meeting of the Webster Medical Club was held at the Joslin House, January 20, 1932. Dr. F. Dennette Adams was the speaker. Dinner was served.

INEZ M. CURRIE, M.D., *Secretary.*

MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY

The annual mid-winter meeting of the Middlesex South District Medical Society was held January 12, 1932, at the Commander Hotel, Cambridge.

Dr. Fritz W. Gay, the President, presided at a well-attended meeting.

Dr. H. G. Stetson, the President of the Massachusetts Medical Society, spoke at length concerning the activities of the Society. He discussed various phases of the work now being done and gave a preliminary report of the activities of the Committee on Public Relations recently established. He also out-

lined some of the "bills" which are before the present legislature.

Dr. David Cheever spoke next, giving a fine philosophical discourse on the practice of medicine. His paper entitled "Are We in Our Course or Are We Drifting?" was well received.

The meeting was opened for general discussion.

Dr. Charles E. Mongan, as representative of this District Society on the Committee of Public Relations, then informed the Fellows present as to what had been accomplished by this body up to the present date.

The meeting was then adjourned.

ALEXANDER A. LEVI, M.D., *Secretary.*

HAMPDEN DISTRICT MEDICAL SOCIETY

The regular Winter Meeting of the Society was held in the rooms of the Springfield Academy of Medicine, 20 Maple Street, Springfield, on Tuesday, January 26, 1932, at 4:15 P. M.

Paper for the afternoon: "Clinical Application of Recent Knowledge of the Gall Bladder"—Dr. Lester R. Whitaker of Boston. The paper was illustrated with lantern slides. Dr. Whitaker presented some new and interesting work.

The President of the State Society, Dr. H. G. Stetson, discussed the problems that are now before the Society.

Discussion by Fellows.

Supper at 6 P. M. at expense of Society.

PROCEEDINGS OF THE BOSTON PATHOLOGICAL SOCIETY

The meeting was held November 11, 1931 at the Pathological Laboratory of the Children's Hospital. Dr. Shields Warren was in the chair.

A large number of gross specimens illustrating many of the pathologic conditions peculiar to infancy and childhood were inspected. Several phases of the pathology of children's diseases were then presented.

I—Types of Splenomegaly in Childhood

James M. Baty, M.D.

A study of a number of spleens removed at operation was made in conformity with the following clinical and pathologic grouping:

I—Erythroblastic Anemia.
II—Congenital Hemolytic Anemia.
III—Banti's Disease.
IV—Splenomegaly with Gastric Hemorrhages.
V—Purpura Hemorrhagica.

The various histologic pictures were discussed and illustrated. The most characteristic and constant findings were noted in the erythroblastic anemia group. These were fibrosis, atrophy of the follicles, erythropoiesis, increased number of eosinophiles and hemosiderin deposits.

II—Syphilitic Hypoplasia of the Teeth

Paul E. Boyle, D.D.S.

A report was given on the results of the histopathologic examination of the tooth germs of four infants coming to autopsy at the Children's Hospital.

In each case, a diagnosis of congenital syphilis had been made clinically and confirmed by pathologic examination. The developing first permanent molar and the temporary molars were studied. Inflammatory and atrophic changes were described.

In two cases, there was a perivascular and diffuse inflammatory cell infiltration which was most marked in and about the enamel organ. The normally delicate stellate reticulum was obscured by monocytes, lymphocytes and polymorphonuclear leucocytes, and, in one case, was penetrated by numerous capillaries. Giant cells were present. In certain areas the enamel forming cells (ameloblasts) were lifted from the forming enamel by an exudate of inflammatory cells. Such lesions seem to account for the patchy distribution of enamel seen in the characteristic mulberry molar of congenital syphilis.

One case showed striking atrophic changes. The enamel organ was less than one-tenth its normal size. The stellate reticulum had completely disappeared. The outer and inner enamel epithelium appeared to have fused to form a layer of stratified epithelial cells. In places, distorted ameloblasts were recognizable. Such changes seem to account for the dwarfed crowns, and thinness or absence, of enamel observed in the mulberry molar. The dentin in this case was poorly and irregularly calcified. Cells and capillaries were included in the predentin. The odontoblasts were atrophic. These lesions were similar to those described in the tooth germs of vitamin A deficient animals.

In the remaining case vigorous anti-syphilitic treatment had been instituted two months prior to death. Inflammatory and atrophic changes were seen. There was also, however, evidence of regenerative changes in the enamel organ, together with indications of improvement in the formation and calcification of the enamel and dentin matrices.

III—A Case of "Double Appendix" and Associated Anomalies

Harry N. Pratt, M.D.

A case of a fifteen-day-old infant showing multiple congenital anomalies was reported. The most striking malformation was the presence of two "appendices" lying on opposite sides of the cecum, each with its individual mesentery and with lumina continuous with the bowel. Associated with this there was a primitive mid-line mesentery, absence of a rectum, and the remnant of a cloacal duct. Such an intestinal tract is highly suggestive of that of many types of birds. A full description and review of the literature will be published at an early date.

IV—Cyst of the Common Duct

Robert Gross, M.D.

A case of common bile duct cyst was presented. The child was two years old and had had symptoms of progressive abdominal enlargement for one year, several attacks of intermittent jaundice each lasting three to five weeks, and alcoholic stools during these periods of icterus. On physical examination,

the right upper abdominal quadrant was filled with a tumor which was thought to be solid in character. This was painless and non-tender. It was observed during her stay in the hospital that the tumor varied considerably in size and consistency, tending to enlarge and to become more tense following meals. The marked jaundice regressed and the stools became normally bile colored after several days' rest in bed. Two operations were performed. The first one failed to disclose the true nature of the mass. The second operation, however, showed the mass to represent a large cystic dilatation of the common bile duct into a sac 7 to 8 cm. in diameter. The cystic and hepatic ducts were moderately dilated and emptied separately into this enlarged common duct. The opening from the "cyst" into the duodenum was not found at operation. The cyst was removed and the hepatic duct was drained. The patient succumbed five hours later. At autopsy, the lower portion of the common duct was found to be of normal calibre for 3.5 cm., and this portion joined the dilated part above to the duodenum. There was no calculus, kink, valve, neoplasm, or other mechanical obstruction which might have caused the dilatation. The liver showed a marked biliary cirrhosis with active regeneration. The case then is one of so-called "idiopathic or congenital choledochus cyst", of which about ninety have been reported in the literature to date.

THE WILLIAM HARVEY SOCIETY

Friday, February 12, 1932, 8:00 P. M. at the Beth Israel Hospital.

Speaker: Dr. Stanley Hart Osborn, Commissioner of Health, Connecticut.

Subject: "Problems of and Opportunities in Public Health."

Chairman: Dr. Dwight O'Hara, Professor of Preventive Medicine, Tufts College Medical School.

BOSTON HEALTH LEAGUE, INC.

The annual dinner and meeting of the Boston Health League, Inc., will be held at the Hotel Kenmore on Thursday, February 25, at half past six.

Dr. Louis I. Dublin, President of the American Public Health Association, will be the speaker.

BERKSHIRE DISTRICT MEDICAL SOCIETY

The Berkshire District Medical Society will meet at the Irving House, Dalton, on the evening of February 10.

The speaker of the evening will be Dr. Howard M. Clute of the Lahey Clinic. Subject: "The Management of Common Duct Obstruction."

HUGH DOWNEY, *Secretary.*

BOSTON CITY HOSPITAL

CLINICAL MEETING

At the Boston City Hospital, February 18, 1932, by the Department of Surgical Research and the Harvard Surgical Teaching Service, 7:45 P. M.

Dr. Earl R. Lehnherr:
"Chemical Findings in Arteriosclerotic Blood Vessels."

Dr. J. Edward Flynn and Dr. Stephen J. Maddock:
"Bile Peritonitis with Special Reference to Blood Chemistry."

Dr. Charles C. Lund:
"Some Aspects of the Surgery of Aneurysms."

Dr. Irving J. Walker:
"Hernia into the Prevesical Space."

Dr. Stephen J. Maddock:
"The Effect of Ligation of the Hepatic Artery."

Dr. Stanley J. G. Nowak:
"Experimental Studies in Spinal Anesthesia."

Dr. Augustus Riley:
"Conservative Kidney Surgery."

Dr. Frank W. Marvin:
"Avertin as a Basal Anesthesia."

Dr. Robert Aldrich:
"Treatment of Burns with Special Reference to Gentian Violet."

Dr. William A. White, Jr., and Dr. Edward A. Cooney:
"A Non-operative Treatment of Carbuncles."

NEW ENGLAND PEDIATRIC SOCIETY

The New England Pediatric Society will meet Friday, February 26, 1932.

PROGRAM

1. Clinical meeting at the Children's Hospital, Boston, at 4 P. M.

2. Evening program at the Boston Medical Library at 8:15 P. M.

A. Inaugural address—The Eczema Problem. Dr. Lewis Webb Hill, Boston.

B. The Promise of Psychiatry. Dr. James S. Plant, Director of Essex County Juvenile Clinic, Newark, New Jersey.

C. Refreshments.

The meeting will start promptly at 8:15 P. M.

GERALD HOEFFEL, *Secretary.*

THE NEW ENGLAND DERMATOLOGICAL SOCIETY

The regular quarterly meeting of the New England Dermatological Society will be held on Wednesday, February 10. There will be a clinical meeting at the Skin Out-Patient Department of the Massachusetts General Hospital at three P. M.

WM. P. BOARDMAN, *Secretary.*

NEW ENGLAND HOSPITAL ASSOCIATION

The tenth annual meeting of the New England Hospital Association will be held at the Copley-Plaza Hotel, Boston, February 5 and 6.

W. FRANKLIN WOOD, *Secretary-Treasurer.*

SOUTH END MEDICAL CLUB

The next regular meeting of the South End Medical Club will be held at the office of the Boston Tuberculosis Association, 554 Columbus Avenue, Boston, on Tuesday, February 16, 1932, at 12 noon.

The speaker will be Dr. George Gilbert Smith, Urologist, Massachusetts General Hospital, and Urologist at Palmer Memorial Hospital. His subject will be "Prostatic Obstruction."

The usual luncheon will be served. All physicians are cordially invited to attend.

HARVARD MEDICAL SOCIETY

The next meeting of the Harvard Medical Society will be held in the Peter Bent Brigham Hospital Amphitheatre (Van Dyke Street entrance), Tuesday evening, February 9, at 8:15 o'clock.

PROGRAM

Usual exhibition of cases.

Further Studies of Hypothalamic Function, by Professor John Beattie of McGill University.

Medical students and physicians are cordially invited to attend.

JOHN HOMANS, *Secretary.*

SOCIETY MEETINGS
CONGRESSES AND CONFERENCES

February 5 and 6—New England Hospital Association. See page 259.

February 8 - March 28—Massachusetts Department of Education. See page 202, issue of January 28.

February 9—Harvard Medical Society. See notice above.

February 10—The New England Dermatological Society. See page 259.

February 11—Massachusetts General Hospital. See page 204, issue of January 28.

February 11—Medical Clinic at the Peter Bent Brigham Hospital. See page 252.

February 12—The William Harvey Society. See page 259.

February 16—South End Medical Club. See notice above.

February 18—Boston City Hospital. See page 259.

February 25—Boston Health League, Inc. See page 259.

February 26—New England Pediatric Society. See page 259.

March 2 - June 1—New England Heart Association. See page 891, issue of October 29.

March 26—Examination Conducted by the American Board of Obstetrics and Gynecology (written)—May 10 (general, oral and clinical). See page 252.

March - April, Autumn — International Postgraduate Courses in Berlin. See page 1169, issue of December 10.

April 4-8—The American College of Physicians. See notice on page 1232, issue of June 4.

May 9-13—American Medical Association, New Orleans, La.

June 8, 9, 10—Massachusetts Medical Society, Hotel Statler, Boston.

October 24-27—American Public Health Association. See notice on page 1321, issue of December 31.

October 24-28—Inter-state Postgraduate Medical Association of North America. See page 39, issue of January 7.

DISTRICT MEDICAL SOCIETIES

Berkshire District Medical Society

February 10—See page 259.

Essex North District Medical Society

May 4—Annual meeting at Lawrence.

Essex South District Medical Society

February 10, Wednesday—Hawthorne Hotel, Salem. Dinner 7 P. M. Speakers: Dr. Lincoln F. Sise and Dr. Harry H. Germain. Subject: Selection of the Anesthetic for the Patient and Operation. Dr. Sise to speak from the viewpoint of the Anesthetist, and Dr. Germain from the viewpoint of the Surgeon.

March 2, Wednesday—Lynn Hospital. Clinic 5 P. M. Dinner 7 P. M. Subject to be announced later. Speaker: Dr. Elmer W. Barron, Boston.

April 6, Wednesday—Essex Sanatorium, Middleton. Clinic 5 P. M. Dinner 7 P. M. Speaker: Dr. Arthur P. Wakefield, State Department of Health. Subject: 10-Year Tuberculosis Program in the Public Schools.

May 5, Thursday—Censors' Meeting, Salem Hospital, 3:30 P. M.

May 10, Tuesday—Annual Meeting. The Tavern, Gloucester. Speaker and subject to be announced later. Ladies invited.

Franklin District Medical Society

Meeting will be held on the second Tuesday of March and May at the Weldon, Greenfield, at 11 A. M.

CHARLES MOLINE, Secretary.

Middlesex East District Medical Society

At a meeting of the executive committee the following schedule for the Middlesex East District Medical Society was arranged:

March—At Reading.

May—At Woburn.

Meetings on the second Wednesday of each month unless otherwise announced.

Norfolk District Medical Society

February 23—Place to be announced. Clinico-Pathological meeting, Dr. Frank S. Cruickshank, and Dr. J. W. Budd of the Medical and Pathological Staff of the Boston City Hospital.

March 29—Place to be announced. Boston Public Health Meeting. Speakers, Honorable James M. Curley, Dr. Francis X. Mahoney, Dr. Charles Wilinsky, Dr. W. H. Griffin.

May—Annual Meeting, date and place to be announced.

May 5—Censors' Meeting for examination of candidates. Roxbury Masonic Temple, 171 Warren Street, Roxbury, 4 P. M. Fee $10.00 payable at time of examination. All candidates will have applications in the hands of the secretary one week prior to this date. All candidates from Medical Schools not on approved list of Society must have application complete two weeks prior to date of examination.

F. S. CRUICKSHANK, Secretary.

Norfolk South District Medical Society

February 4—This meeting will be held at the Quincy City Hospital. The program will be furnished by the members of the hospital staff.

March 3—Speaker: Roderick Heffron, M.D. Subject: Pneumonia.

April 7—To be announced later.

May 5—Annual meeting.

The time of all meetings is 12 o'clock noon. All meetings, except February 4, will be held at the Norfolk County Hospital, South Braintree. Censors will meet on May 5 at 11:15 A. M. at the Norfolk County Hospital.

N. R. PILLSBURY, Secretary.

Suffolk District Medical Society

February 24—Clinical Program, the Children's Hospital.

March 30—Clinical Program, New England Deaconess Hospital.

April 27—The Annual Meeting, Boston Medical Library. Election of Officers.

The Medical Profession is cordially invited to attend all of these meetings.

REGINALD FITZ, M.D., Vice President.
LELAND S. McKITTRICK, M.D., Secretary.
HILBERT F. DAY, M.D., Boston Medical Library.

Worcester District Medical Society

Wednesday evening, February 10—Worcester State Hospital. 6:30—Dinner, complimentary by the Worcester State Hospital. 7:45—A psychiatric program will be given.

Wednesday evening, March 9 — Memorial Hospital, Worcester, Mass. 6:30—Dinner, complimentary by Memorial Hospital. 7:45—A pediatric meeting with subjects to be announced later.

Wednesday evening, April 13—Grafton State Hospital, North Grafton, Mass. 6:30—Dinner, complimentary by Grafton State Hospital. 7:45—Program to be announced later.

Wednesday afternoon and evening, May 11—Annual Meeting. Program to be announced later.

ERWIN C. MILLER, Secretary.